New York Times Bestseller

You Are the PLACEBO

making your mind matter

Dr. Joe Dispenza

The best-selling author of *Breaking the Habit of Being Yourself*

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FOREWORD

Like most of his fans, I look forward to Joe Dispenza's provocative ideas with relish. Combining solid scientific evidence with stimulating insights, Joe stretches the horizons of the possible by extending the boundaries of the known. He takes science more seriously than most scientists, and in this fascinating book, he extrapolates the most recent discoveries in epigenetics, neuroplasticity, and psychoneuroimmunology to their logical conclusion.

That conclusion is an exciting one: You, and every other human being, are shaping your brain and body by the thoughts you think, the emotions you feel, the intentions you hold, and the transcendental states you experience. *You Are the Placebo* invites you to harness this knowledge to create a new body and new life for yourself.

This isn't a metaphysical proposition. Joe explains each link in the chain of causality that starts with a thought and ends with a biological fact, such as an increase in the number of stem cells or immunity-conferring protein molecules circulating in your bloodstream.

The book starts with Joe's account of an accident that shattered six of the vertebrae of his spine. Suddenly, in extremis, he was confronted with the necessity of putting into practice what he believed in theory: that our bodies possess an innate intelligence that includes miraculous healing power. The discipline he brought to the process of visualizing his spinal column rebuilding itself is a story of inspiration and determination.

We're all inspired by such stories of spontaneous remission and "miraculous" healing, yet what Joe shows us in this book is

that we are all capable of experiencing such healing miracles. Renewal is built into the very fabric of our bodies, and degeneration and disease are the exception, not the norm.

Once we understand how our bodies renew themselves, we can start to harness these physiological processes intentionally, directing the hormones our cells synthesize, the proteins they build, the neurotransmitters they produce, and the neural pathways through which they send signals. Rather than possessing a static anatomy, our bodies are seething with change, moment by moment. Our brains are on the boil, teeming with the creation and destruction of neural connections in every second. Joe teaches us that we can steer this process with intention, assuming the powerful position of driver of the vehicle, rather than the passive role of passenger.

The discovery that the number of connections in a neural bundle can double with repeat stimulation revolutionized biology in the 1990s. It earned its discoverer, the neuropsychiatrist Eric Kandel, a Nobel Prize. Kandel later found that if we don't use neural connections, they begin to shrink in just three weeks. In this way, we can reshape our brains via the signals we pass through our neural network.

In the same decade that Kandel and others measured neuroplasticity, other scientists discovered that few of our genes are static. The majority of genes (estimates range from 75 to 85 percent) are turned off and on by signals from our environment, including the environment of thoughts, beliefs, and emotions that we cultivate in our brains. One class of these genes, the *immediate early genes* (IEGs), takes only three seconds to reach peak expression. IEGs are often regulatory genes, controlling the expression of hundreds of other genes and thousands of other proteins at remote sites in our bodies. That kind of pervasive and rapid change is a plausible explanation for some of the radical healings you'll read about in these pages.

Joe is one of the few science writers to fully grasp the role of emotion in transformation. Negative emotion may literally be an addiction to high levels of our own stress hormones, like cortisol

and adrenaline. Both these stress hormones and relaxation hormones like DHEA and oxytocin have set points, which explains why we feel uncomfortable in our skin when we think thoughts or countenance beliefs that drive our hormonal balance outside of that comfort zone. This idea is at the very frontier of the scientific understanding of addictions and cravings.

By changing your internal state, you can change your external reality. Joe masterfully explains the chain of events that starts with intentions originating in the frontal lobe of your brain and then translating into chemical messengers, called *neuropeptides,* that send signals throughout your body, turning genetic switches on or off. Some of these chemicals, like *oxytocin,* the "cuddle hormone" that's stimulated by touch, are associated with feelings of love and trust. With practice, you can learn to quickly adjust your set points for stress hormones and healing hormones.

The notion that you can heal yourself by simply translating thought into emotion might sound astounding at first. Not even Joe expected the results he began to observe in participants attending his workshops when they fully applied these ideas: spontaneous remission of tumors, wheelchair-bound patients walking, and migraines disappearing. With the openhearted delight and open-minded experimentation of a child at play, Joe began to push the envelope, wondering just how fast radical healing might occur if people applied the body's placebo effect with complete conviction. Hence, the title *You Are the Placebo* reflects the fact that it's your own thoughts, emotions, and beliefs that are generating chains of physiological events in your body.

At times, you will feel uncomfortable reading this book. But read on. That discomfort is just your old self, protesting the inevitability of transformative change, and your hormonal set points being disturbed. Joe reassures us that those feelings of discomfort may simply be the biological sensation of the dissolution of the old self.

Most of us won't have the time or inclination to understand these complex biological processes. Here's where this book provides a great service. Joe digs deep into the science behind these

changes to present them in an understandable and digestible way. He does the heavy lifting behind the scenes in order to present elegant and simple explanations. Using analogies and case histories, he demonstrates exactly how we can apply these discoveries in our daily lives and illustrates the dramatic breakthroughs in health experienced by those who take them seriously.

A new generation of researchers has coined a term for the practice Joe outlines: *self-directed neuroplasticity* (or *SDN*). The idea behind the term is that we direct the formation of new neural pathways and the destruction of old ones through the quality of the experiences we cultivate. I believe that SDN will become one of the most potent concepts in personal transformation and neurobiology for the coming generation, and this book will be at the forefront of that movement.

In the meditation exercises in Part II of this book, metaphysics moves into concrete manifestation. You can do these meditations yourself easily, experiencing firsthand the expanded possibilities of being your own placebo. The goal here is to change your beliefs and perceptions about your life at a biological level so that you are, in essence, loving a new future into concrete material existence.

So embark on this enchanted journey that will expand your horizons of the possible and challenge you to embrace a radically higher level of healing and functioning. You have nothing to lose by throwing yourself enthusiastically into the process and dumping the thoughts, feelings, and biological set points that have limited your past. Believe in your ability to realize your highest potential and take inspired action, and you will become the placebo that creates a happy and healthy future for yourself and for our planet.

— Dawson Church, Ph.D.
Author of *The Genie in Your Genes*

PREFACE

Waking Up

I never planned on doing any of this. The work I'm currently involved in as a speaker, author, and researcher sort of found me. In order for some of us to wake up, we sometimes need a wake-up call. In 1986, I got the call. On a beautiful Southern California day in April, I had the privilege of being run over by an SUV in a Palm Springs triathlon. That moment changed my life and started me on this whole journey. I was 23 at the time, with a relatively new chiropractic practice in La Jolla, California, and I'd trained hard for this triathlon for months.

I had finished the swimming segment and was in the biking portion of the race when it happened. I was coming up to a tricky turn where I knew we'd be merging with traffic. A police officer, with his back to the oncoming cars, waved me on to turn right and follow the course. Since I was fully exerting myself and focused on the race, I never took my eyes off of him. As I passed two cyclists on that particular corner, a red four-wheel-drive Bronco going about 55 miles an hour slammed into my bike from behind. The next thing I knew, I was catapulted up into the air; then I landed squarely on my backside. Because of the speed of the vehicle and the slow reflexes of the elderly woman driving the Bronco, the SUV kept coming toward me, and I was soon reunited with its bumper. I quickly grabbed the bumper in order to avoid

being run over and to stop my body from passing between metal and asphalt. So I was dragged down the road a bit before the driver realized what was happening. When she finally did abruptly stop, I tumbled out of control for about 20 yards.

I can still remember the sound of the bikes whizzing by and the horrified screams and profanities of the riders passing me—not knowing whether they should stop and help or continue the race. As I lay there, all I could do was surrender.

I would soon discover that I had broken six vertebrae: I had compression fractures in thoracic 8, 9, 10, 11, and 12 and lumbar 1 (ranging from my shoulder blades to my kidneys). The vertebrae are stacked like individual blocks in the spine, and when I hit the ground with that kind of force, they collapsed and compressed from the impact. The eighth thoracic vertebra, the top segment that I broke, was more than 60 percent collapsed, and the neural arch (the circular ring that contains and protects the spinal cord) was broken and pushed together like a pretzel. When a vertebra compresses and fractures, the bone has to go somewhere. In my case, a large volume of shattered fragments went back toward my spinal cord. It was definitely not a good picture.

As if I were in a bad dream gone rogue, I woke up the next morning with a host of neurological symptoms, including several different types of pain; varying degrees of numbness, tingling, and some loss of feeling in my legs; and some sobering difficulties in controlling my movements.

So after I had all the blood tests, x-rays, CAT scans, and MRIs at the hospital, the orthopedic surgeon showed me the results and somberly delivered the news: In order to contain the bone fragments that were now on my spinal cord, I needed surgery to implant Harrington rods. That would mean cutting out the back parts of the vertebrae from two to three segments above and below the fractures and then screwing and clamping two 12-inch stainless-steel rods along both sides of my spinal column. Then they'd scrape some fragments off my hip bone and paste them over the rods. It would be major surgery, but it would mean I'd at least have a chance to walk again. Even so, I knew I'd probably still

be somewhat disabled, and I'd have to live with chronic pain for the rest of my life. Needless to say, I didn't like that option.

But if I chose not to have the surgery, paralysis seemed certain. The best neurologist in the Palm Springs area, who concurred with the first surgeon's opinion, told me that in his 27 years of practice, he had known of no other patient with my condition who had refused it. The impact of the accident had compressed my T-8 vertebra into a wedge shape that would prevent my spine from being able to bear the weight of my body if I were to stand up: My backbone would collapse, pushing those shattered bits of the vertebra deep into my spinal cord, causing instant paralysis from my chest down. That was hardly an attractive option either.

I was transferred to a hospital in La Jolla, closer to my home, where I received two additional opinions, including one from the leading orthopedic surgeon in Southern California. Not surprisingly, both doctors agreed that I should have the Harrington rod surgery. It was a pretty consistent prognosis: have the surgery or be paralyzed, never to walk again. If I had been the medical professional making the recommendation, I'd have said the same thing: It was the safest option. But it wasn't the option I chose for myself.

Maybe I was just young and bold at that time in my life, but I decided against the medical model and the expert recommendations. I believe that there's an intelligence, an invisible consciousness, within each of us that's the giver of life. It supports, maintains, protects, and heals us every moment. It creates almost 100 trillion specialized cells (starting from only 2), it keeps our hearts beating a little more than a hundred thousand times per day, and it can organize hundreds of thousands of chemical reactions in a single cell in every second—among many other amazing functions. I reasoned at the time that if this intelligence was real and if it willfully, mindfully, and lovingly demonstrated such amazing abilities, maybe I could take my attention off my external world and begin to go within and connect with it—developing a relationship with it.

But while I intellectually understood that the body often has the capacity to heal itself, now I had to apply every bit of

philosophy that I knew in order to take that knowledge to the next level and beyond, to create a true experience with healing. And since I wasn't going anywhere and I wasn't doing anything except lying facedown, I decided on two things. First, every day I would put all of my conscious attention on this intelligence within me and give it a plan, a template, a vision, with very specific orders, and then I would surrender my healing to this greater mind that has unlimited power, allowing it to do the healing for me. And second, I wouldn't let any thought slip by my awareness that I didn't want to experience. Sounds easy, right?

A Radical Decision

Against the advice of my medical team, I left the hospital in an ambulance that brought me to the home of two close friends, where I stayed for the next three months to focus on my healing. I was on a mission. I decided that I would begin every day reconstructing my spine, vertebra by vertebra, and I would show this consciousness, if it was paying attention to my efforts, what I wanted. I knew that it would demand my absolute presence . . . that is, for me to be present in the moment—not thinking about or regretting my past, worrying about the future, obsessing about the conditions in my external life, or focusing on my pain or symptoms.

Just as in any relationship we have with anybody, we all know when someone is present or not with us, right? They are paying attention to us. That's because consciousness is awareness, awareness is paying attention, and paying attention is being present and noticing. Therefore, this consciousness would be aware of when I was present and when I wasn't. I would have to be totally present when I interacted with this mind; my presence would have to match its presence, my will would have to match its will, and my mind would have to match its mind.

So for two to three hours, sometimes twice a day, I went within and began creating a picture of my intended result: a totally healed spine. Of course, I became aware of how unconscious and unfocused I was. It's ironic. I realized back then that when crisis

or trauma occurs, we spend too much of our attention and energy thinking about what we *don't* want instead of what we *do* want. During those first several weeks, I was guilty of this tendency on what seemed like a moment-to-moment basis.

In the middle of my meditations on creating the life I wanted with a fully healed spine, I would all of a sudden become aware that I'd been unconsciously thinking about what the surgeons had told me a few weeks prior: that I would probably never walk again. I would be in the midst of inwardly reconstructing my spine, and the next thing I knew I was stressing over whether I should sell my chiropractic practice. While I was step-by-step mentally rehearsing walking again, I would catch myself imagining what it would be like to live the rest of my life sitting in a wheelchair—you get the idea.

So every time I lost my attention and my mind wandered to any extraneous thoughts, I would start from the beginning and do the whole scheme of imagery over again. It was tedious, frustrating, and, quite frankly, one of the most difficult things I'd ever done. But I reasoned that the final picture that I wanted the observer in me to notice had to be clear, unpolluted, and uninterrupted. In order for this intelligence to accomplish what I hoped—what I *knew*—it was capable of doing, from start to finish I had to stay conscious and not go unconscious.

Finally, after six weeks of battling with myself and making the effort to be present with this consciousness, I was able to make it through my inward reconstruction process without having to stop and start over from the beginning. I remember the day I did it for the first time: It was like hitting a tennis ball on the sweet spot. There was something *right* about it. It clicked. I clicked. And I felt complete, satisfied, and whole. For the first time, I was truly relaxed and present—in mind and body. There was no mental chatter, no analyzing, no thinking, no obsessing, no trying; something lifted, and a kind of peace and silence prevailed. It was as if I no longer cared about all of the things I should have been worried about in my past and future.

And that realization solidified the journey for me, because right around that time, as I was creating this vision of what I

wanted, reconstructing my vertebrae, it started to get easier every day. Most important, I started to notice some pretty significant physiological changes. It was in that moment that I began to correlate what I was doing inside of me to create this change with what was taking place outside of me—in my body. The instant I made that correlation, I paid greater attention to what I was doing and did it with more conviction; and I did it again and again. As a result, I kept doing it with a level of joy and inspiration instead of such a dreadful, compromised effort. And all of a sudden, what had originally taken me two or three hours to accomplish in one session, I was able to do in a shorter period.

Now, I had quite a bit of time on my hands. So I started to think about what it would be like to see a sunset again from the water's edge or eat lunch with my friends at a table in a restaurant, and I thought about how I would never take any of that for granted. In detail, I imagined taking a shower and feeling the water on my face and body, or simply sitting up while using the toilet or taking a walk on the beach in San Diego, the wind blowing on my face. These were some things that I had never fully appreciated before the accident, but now they had meaning—and I took my time to emotionally embrace them until I felt as if I were already there.

I didn't know what I was doing at the time, but now I do: I was actually starting to think about all these future potentials that existed in the quantum field, and then I was emotionally embracing each of them. And as I selected that intentional future and married it with the elevated emotion of what it would be like to be there in that future, in the present moment my body began to believe it was actually *in* that future experience. As my ability to observe my desired destiny got sharper and sharper, my cells began to reorganize themselves. I began to signal new genes in new ways, and then my body *really* started getting better faster.

What I was learning is one of the main principles of quantum physics: that mind and matter are not separate elements, that our conscious and unconscious thoughts and feelings are the very blueprints that control our destiny. The persistence, conviction, and focus to manifest any potential future lies within the human

mind and within the mind of the infinite potentials in the quantum field. Both of these minds must work together in order to bring about any future reality that potentially already exists. I realized that in that way, we are all divine creators, independent of race, gender, culture, social status, education, religious beliefs, or even past mistakes. I felt really blessed for the first time in my life.

I made other key decisions about my healing as well. I set up a whole regimen (described in detail in *Evolve Your Brain*) that included diet, visits from friends who practiced energy healing, and an elaborate rehabilitation program. But nothing was more important to me during that time than getting in touch with that intelligence within me and, through it, using my mind to heal my body.

At nine and a half weeks after the accident, I got up and walked back into my life—without having any body cast or any surgeries. I had reached full recovery. I started seeing patients again at 10 weeks and was back to training and lifting weights again, while continuing my rehabilitation, at 12 weeks. And now, almost 30 years after the accident, I can honestly say that I've hardly ever had back pain since.

Research Begins in Earnest

But that wasn't the end of this adventure. Not surprisingly, I couldn't go back into my life as my same self. I was changed in many ways. I'd been initiated into a reality that no one I knew could really understand. I couldn't relate with a lot of my friends, and I certainly couldn't return to the same life. The things that were once so important to me really no longer mattered. And I started asking big questions like "Who am I?"; "What is the meaning of this life?"; "What am I doing here?"; "What's my purpose?"; and "What or who is God?" I left San Diego within a short time and moved to the Pacific Northwest, eventually opening a chiropractic clinic near Olympia, Washington. But at first, I pretty much retreated from the world and studied spirituality.

In time, I also became very interested in spontaneous remissions: when people healed from a serious disease or condition deemed terminal or permanent, without traditional medical interventions like surgery or drugs. On those long, lonely nights during my recovery when I couldn't sleep, I had made a deal with that consciousness that if I were ever able to walk again, I'd spend the rest of my life investigating and researching the mind-body connection and the concept of mind over matter. And that's pretty much what I've been doing in the nearly three decades since then.

I traveled to several different countries, seeking out many people who had been diagnosed with illnesses and treated conventionally or nonconventionally, either staying the same or getting worse until, all of a sudden, they got better. I started interviewing these people to discover what their experiences had in common so I could understand and document what had made them improve, because I had a passion to marry science with spirituality. What I found was that each of these miraculous cases relied on a strong element of mind.

The scientist in me started getting very itchy, becoming even more inquisitive. I became re-involved in attending university classes and studying the latest research in neuroscience, and I advanced my postgraduate training in brain imaging, neuroplasticity, epigenetics, and psychoneuroimmunology. And I figured, now that I knew what these people had done to get better and now that I knew all about the science of changing your mind (or at least I *thought* I did), I should be able to reproduce it—in both sick people and people who are well who want to make changes to support not only their health, but also their relationships, careers, families, and lives in general.

I was then invited to be one of the 14 scientists and researchers featured in the 2004 documentary film *What the Bleep Do We Know!?* and that movie became an overnight sensation. *What the Bleep Do We Know!?* invited people to question the nature of reality and then try it out in their lives to see if their observation mattered or, perhaps more accurately put, if their observation *became* matter. People around the world were talking about the film and

the concepts it espoused. In the wake of that, my first book, *Evolve Your Brain: The Science of Changing Your Mind,* was published in 2007. After *Evolve Your Brain* had been out for a while, people started to ask me, "How do you *do* it? How do you change, and how do you create the life you want?" It soon became the most common question people asked me.

So I assembled a team and started teaching workshops across the United States and internationally on how the brain is wired and how you can reprogram your thinking using neurophysiological principles. At first, these workshops were mostly just a sharing of information. But people wanted more, so I added meditations to synergize and complement the information, giving participants practical steps to making changes in their minds and bodies, and, as a result, changes in their lives as well. After I taught my introductory workshops in different parts of the world, people would then ask me, "What's next?" So I began teaching another level to the introductory workshop. After that was completed, more folks asked if I could teach another level, a more advanced workshop. This continued in most of the places where I presented.

I kept thinking that I was done, that I'd taught all I could teach, but people kept asking for more, so I'd learn more myself and then refine the presentations and meditations. A momentum developed, and I was getting good feedback; people were able to eliminate some of their self-destructive habits and lead happier lives. Even though up to this point, my associates and I had seen only small changes—nothing really significant—people loved the information and wanted to continue the practice. So I kept going where I was invited. I figured that when the time came that they stopped inviting me, I'd know I was done with this work.

About a year and a half after our first workshop, my team and I started receiving several e-mails from our participants commenting on positive changes they were experiencing from doing the meditations on a consistent basis. A flood of change began to manifest in people's lives, and they were overjoyed. The feedback we received over the next year caught my attention and that of my staff as well. Our participants began reporting not only subjective

changes in their physical health, but also improvements in objective measurements from their medical tests. Sometimes the tests would even come back totally normal! These people were able to reproduce the exact physical, mental, and emotional changes that I studied, observed, and ultimately wrote about in *Evolve Your Brain*.

This was incredibly exciting for me to witness, because I knew that anything that is repeatable verges on becoming a scientific law. It seemed as though many folks were sending us e-mails starting with the same verbiage: "You're not going to believe this . . ." And those changes were now more than coincidence.

Then a little later that year, during each of two events in Seattle, some amazing things began to happen. At the first event, a woman with multiple sclerosis (MS), who was using a walker when she arrived, was walking unassisted by the time the workshop was over. At the second Seattle event that year, another woman, who had suffered with MS for ten years, started dancing around, declaring that the paralysis and numbness she'd experienced in her left foot were completely gone. (You'll read more about one of these women, and others like them, in the chapters to come.) By demand, in 2010 I taught a more progressive workshop in Colorado, where people started noticing that they were shifting their well-being right there, during the event. People stood up, took the microphone, and reported some pretty inspiring stories.

Around this time, I was also invited to speak to a lot of business leaders about the biology of change, the neuroscience of leadership, and the concept of how to transform individuals in order to transform a culture. After a keynote address to one group, several executives approached me about adapting the ideas for a corporate model of transformation. So I created an eight-hour course that could be tailored for companies and organizations, and the course was so successful that it spawned our "30 Days to Genius" corporate program. I found myself working with business clients such as Sony Entertainment Network, Gallo Family Vineyards, the telecommunications company WOW! (originally called Wide Open West), and many others. This led to offering private coaching for upper management.

The demand for our corporate programs became so great that I began training a coaching staff; I now have more than 40 active trainers, including ex-CEOs, corporate consultants, psychotherapists, attorneys, physicians, engineers, and Ph.D. professionals who travel all around, teaching this model of transformation to different companies. (We now have plans to begin certifying independent coaches in using the model of change with their own clients.) Never in my wildest dreams had I ever imagined this type of future for myself.

I wrote my second book, *Breaking the Habit of Being Yourself: How to Lose Your Mind and Create a New One,* published in 2012, to serve as a practical how-to companion to *Evolve Your Brain.* I not only explained more about the neuroscience of change and epigenetics, but also included a four-week program with step-by-step directions for implementing these changes, based on the workshops I was teaching at the time.

Then I did another, more advanced event in Colorado, where we had *seven* spontaneous remissions of various conditions. One woman who was living on lettuce because of severe food allergies was healed that weekend. Other people were healed of gluten intolerance, celiac disease, a thyroid condition, severe chronic pain, and other conditions. All of a sudden, I started seeing some really significant changes in people's health and in their lives, while they retreated from their then-current reality in order to create a new one. It was happening right before my eyes.

Information to Transformation

That event in Colorado in 2012 was the turning point in my career, because I could finally see that people not only were being helped to change their sense of well-being, but now also were signaling new genes in new ways *right there* during the meditations, in real time, in big ways. In order for someone who had been sick for years with a health condition like lupus to become well during a one-hour meditation, something significant *must* have occurred in the person's mind as well as her body. I wanted to figure out

how to measure these changes while they were happening in the workshops so that we could see exactly what was going on.

So in early 2013, I offered a brand-new type of event that shot our workshops to a whole new level. For this event, which was in Arizona, I invited a team of researchers, including neuroscientists, technicians, and quantum physicists, with specialized instruments to join me for a four-day workshop attended by more than 200 participants. The experts used their equipment to measure the ambient electromagnetic field in the workshop room to see if the energy was changing as the workshop progressed. They also measured the field of energy around the participants' bodies and the energy centers of their bodies (also called *chakras*) to see if they were able to influence these centers.

To take these measurements, they used very sophisticated instrumentation, including electroencephalography (EEG) to gauge the brain's electrical activity, quantitative electroencephalography (QEEG) to make a computerized analysis of the EEG data, heart rate variability (HRV) to document the variation in time interval between heartbeats and heart coherence (a heart-rhythm measurement that reflects the communication between the heart and the brain), and gas discharge visualization (GDV) to measure changes in bioenergetic fields.

We did brain scans on many of the participants both before and after the event so that we could see what was going on in the inner world of people's brains, and we also randomly selected people to scan during the event to see if we could measure any changes in brain patterns in real time during the three meditations I led each day. It was a great event. A person with Parkinson's disease no longer had any tremors. Another person with a traumatic brain injury was healed. People with tumors in their brains and bodies found that these growths went away. Many individuals with arthritic pain experienced relief for the first time in years. All of these occurrences were among many other profound changes.

During this amazing event, we were finally able to capture objective changes in a scientific realm of measurement and document the subjective changes participants reported in their health. I don't think it's an exaggeration to say that what we observed

and recorded made history. Later in the book, I'll show you what you're capable of doing, by sharing some of these stories—stories about ordinary people doing the extraordinary.

Here was my idea in developing that workshop: I wanted to give people scientific information and then provide them with the necessary instruction on how to apply that information so that they could achieve heightened degrees of personal transformation. Science is, after all, the contemporary language of mysticism. I learned that the moment you start talking in the language of religion or culture, the moment you start quoting tradition, you divide your audience members. But science unifies them and demystifies the mystical.

And I discovered that if I could teach people the scientific model of transformation (bringing in a little quantum physics to help them understand the science of possibility); combine it with the latest information in neuroscience, neuroendocrinology, epigenetics, and psychoneuroimmunology; give them the right kind of instruction; and provide the opportunity to apply that information, then they would experience a transformation. And if I could do this in a setting where I could measure the transformation as it was happening, then that measurement of transformation would become *more* information that I could use to teach the participants *about* the transformation they had just experienced. And with *that* information, they could have *another* transformation, and on it goes as people begin to close the gap between who they think they are and who they really are—divine creators—making it easier for them to keep doing it. I called this concept "information to transformation," and it has become my new passion.

Now, I offer a 7-hour introductory online intensive, and I also personally teach about twenty 3-day progressive workshops a year all around the world, plus three to four 5-day advanced workshops, where we have the aforementioned scientists come in with their equipment to measure brain changes, changes in heart function, changes in genetic expression, and energetic changes in real time. The results are nothing short of astounding, and they form the basis of this book.

INTRODUCTION

Making Minds Matter

The incredible results I've seen in the advanced workshops I offer and all the scientific data that has come out of that have led me to the idea of the *placebo:* how people can take a sugar pill or get a saline injection and then their belief in something outside of themselves makes them get better.

I began to ask myself, "What if people begin to believe in *themselves* instead of in something outside of themselves? What if they believe that they can change something inside of them and move themselves to the same state of being as someone who's taking a placebo? Isn't that what our workshop participants have been doing in order to get better? Do people really need a pill or injection to change their state of being? Can we teach people to accomplish the same thing by teaching them how the placebo really works?"

After all, the snake-handling preacher who drinks strychnine and has no biological effects certainly has changed his state of being, right? (You'll read more about this in the first chapter.) So if we can then begin to measure what's taking place in the brain and look at all this information, can we teach people how to do it themselves, without relying on something outside of them—without a placebo? Can we teach them that they *are* the placebo? In other words, can we convince them that instead of investing their

belief in the known, like a sugar pill or a saline injection, they can place their belief in the unknown and make the unknown *known?*

And really that's what this book is about: empowering you to realize that you have all the biological and neurological machinery to do exactly that. My goal is to demystify these concepts with the new science of the way things really are so that it is within the reach of more people to change their internal states in order to create positive changes in their health and in their external world. If that sounds too amazing to be true, then as I've said, toward the end of the book you'll see some of the research compiled from our workshops to show you exactly how it's possible.

What This Book Is Not About

I want to take just a moment to talk about a few things that this book is *not* about, to clear up any potential misconceptions right from the start. For one, you won't read here about the ethics of using placebos in medical treatment. There's much debate about the moral correctness of treating a patient who isn't part of a medical trial with an inert substance. While a discussion about whether the end justifies such means may well be worthwhile in a broader conversation about placebos, that issue is completely separate from the message this book aims to deliver. *You Are the Placebo* is about putting you in the driver's seat of creating your own change, not about whether or not it's okay for other people to trick you into it.

This book is also not about denial. None of the methods you'll read about here involve denying whatever health condition you may presently have. Much to the contrary, this book is all about transforming illness and disease. My interest is in measuring the changes people make when they move from sickness to health. Instead of being about rejecting reality, *You Are the Placebo* is about projecting what's possible when you step into a *new* reality.

You'll discover that honest feedback, in the form of medical tests, will inform you if what you're doing is working. Once you see the effects you've created, you can pay attention to what you

did to arrive at that end, and do it again. And if what you're doing isn't working, then it's time to change it until it is. That's combining science and spirituality. Denial, on the other hand, occurs when you're not looking at the reality of what's happening within and around you.

This book also won't question the efficacy of the various healing modalities. Many different modalities exist, and many of them work quite well. All of them have some type of measurable beneficial effect in at least some people, but a complete cataloging of these methods isn't what I want to focus on in this book. My purpose here is to introduce you to the particular modality that has most captured my attention: healing yourself through thought alone. I encourage you to continue using any and all healing modalities that work for you, be they prescription drugs, surgery, acupuncture, chiropractic, biofeedback, therapeutic massage, nutritional supplements, yoga, reflexology, energy medicine, sound therapy, and so on. *You Are the Placebo* is not about rejecting anything except your own self-imposed limitations.

What's Inside This Book?

You Are the Placebo is divided into two parts:

— **Part I** gives you all the detailed knowledge and background information you need to be able to understand what the placebo effect is and how it operates in your brain and body, as well as how to create the same kind of miraculous changes in your own brain and body *all by yourself, by thought alone*.

Chapter 1 starts off the book by sharing some incredible stories demonstrating the amazing power of the human mind. Some of these tales relate how people's thoughts have healed them, and others show how people's thoughts have actually made them sick (and sometimes even hastened their death). You'll read about a man who died after hearing he had cancer, even though his autopsy revealed that he'd been misdiagnosed; a woman plagued by depression for decades who improved dramatically during an

antidepressant drug trial, despite the fact that she was in the group receiving a placebo; and a handful of veterans hobbled by osteoarthritis who were miraculously cured by fake knee surgery. You'll even read some startling stories about voodoo curses and snake handling. My purpose in sharing these dramatic stories is to show the wide range of what the human mind is capable of doing all on its own, without any help from modern medicine. And hopefully, it will lead you to the question "How is that possible?"

Chapter 2 gives a brief history of the placebo, tracing accounts of related scientific discoveries from the 1770s (when a Viennese doctor used magnets to induce what he thought were therapeutic convulsions) all the way through the modern day, as neuroscientists solve exciting mysteries about the intricacies of how the mind works. You'll meet a doctor who developed techniques of hypnotism after arriving late for an appointment only to find his waiting patient mesmerized by a lamp flame, a World War II surgeon who successfully used saline injections as an analgesic on wounded soldiers when he ran out of morphine, and early psychoneuroimmunology researchers in Japan who switched poison-ivy leaves with harmless leaves and found that their test group reacted more to what they were told they were experiencing than to what they actually did experience.

You'll also read about how Norman Cousins laughed himself to health; how Harvard researcher Herbert Benson, M.D., was able to reduce cardiac patients' risk factors for heart disease by figuring out how Transcendental Meditation worked; and how Italian neuroscientist Fabrizio Benedetti, M.D., Ph.D., primed subjects who had been given a drug, and then switched the drug for a placebo—and watched the brain continue to signal the production of the same neurochemicals the drug produced without interruption. And you'll also read a striking new study that's a real game changer: It shows that irritable bowel syndrome (IBS) patients were able to dramatically improve their symptoms by taking placebos—even though they *knew full well* that the medication they were given was a placebo, not an active drug.

Chapter 3 will take you through the physiology of what happens in your brain when the placebo effect is operating. You'll read that, in one sense, the placebo works because you can embrace or entertain a new thought that you can be well, and then use it to replace the thought that you'll always be sick. That means you can change your thinking from unconsciously predicting that your future is your same familiar past to beginning to anticipate and expect a new potential outcome. If you agree with this idea, then it means that you'll have to examine how you think, what the mind is, and how these things affect the body.

I'll explain how as long as you're thinking the same thoughts, they'll lead to the same choices, which cause the same behaviors, which create the same experiences, which produce the same emotions, which in turn drive the same thoughts—so that neurochemically, you stay the same. In effect, you're reminding yourself of who you think you are. But hold on; you're not hardwired to be the same way for the rest of your life. I'll then explain the concept of neuroplasticity and how we now know that the brain is capable of changing throughout our lives, creating new neural pathways and new connections.

Chapter 4 moves into a discussion of the placebo effect in the body, explaining the next step of the physiology of the placebo response. It starts out telling the story of a group of elderly men who attend a weeklong retreat set up by Harvard researchers who asked the men to pretend they were 22 years younger. By the end of the week, the men had made numerous measurable physiological changes, all turning back the clock on their bodies, and you'll learn the secret behind how they did it.

To explain that, the chapter also discusses what genes are and how they are signaled in the body. You'll learn how the relatively new and exciting science of epigenetics has basically torched the old-school idea that your genes are your destiny, by teaching us that the mind truly can instruct new genes to behave in new ways. You'll discover how the body has elaborate mechanisms for turning some genes on and others off, which means that you're not doomed to express whatever genes you've inherited. This means

you can learn how to change your neural wiring to select new genes and create real physical changes. You'll also read about how our bodies access stem cells—the physical matter that's behind many placebo-effect miracles—to make new, healthy cells in areas that have been damaged.

Chapter 5 ties the previous two chapters together, explaining how thoughts change your brain and your body. It begins by asking the question "If your environment changes and you then adapt to those conditions, thereby signaling new genes in new ways, is it possible to signal the new gene *ahead* of the changing of the actual environment?" I'll then explain how you can use a technique called *mental rehearsal* to combine a clear intention with an elevated emotion (to give the body a sampling of the future experience) in order to experience the new future event in the present moment.

The key is making your inner thoughts more real than the outer environment, because then the brain won't know the difference between the two and will change to look as if the event has taken place. If you're able to do this successfully enough times, you'll transform your body and begin to activate new genes in new ways, producing epigenetic changes—just as though the imagined future event were real. And then you can walk right into that new reality and *become* the placebo. This chapter not only outlines the science behind how this happens, but also includes stories of many public figures from different walks of life who have used this technique (whether or not they were fully aware of what they were doing at the time) to make their wildest dreams come true.

Chapter 6, which concentrates on the concept of suggestibility, begins with a fascinating but chilling story of how a team of researchers set out to test whether a regular, law-abiding, mentally healthy person who was highly suggestible to hypnosis could be programmed to do something he or she would normally deem unthinkable: shoot a stranger with the intent to kill.

You'll see that people have differing degrees of suggestibility, and the more suggestible you are, the better able you are to gain access to your subconscious mind. This is key to understanding the placebo effect, because the conscious mind is only 5 percent of who we are. The remaining 95 percent is a set of subconscious

programmed states in which the body has become the mind. You'll learn that you must get beyond the analytical mind and enter into the operating system of your subconscious programs if you want your new thoughts to result in new outcomes and change your genetic destiny. You will understand how meditation is a powerful tool for doing just that. The chapter ends with a brief discussion of different brain-wave states and which are the most conducive to your becoming more suggestible.

Chapter 7 is all about how attitudes, beliefs, and perceptions change your state of being and create your personality—your personal reality—and how you can shift them to create a new reality. You'll read about the power that unconscious beliefs exert and have a chance to identify some of those beliefs you've been harboring without realizing it. You'll also read about how the environment and your associative memories can sabotage your ability to change your beliefs.

I'll explain more fully that in order for you to change your beliefs and perceptions, you must combine a clear intention with an elevated emotion that conditions your body to believe that the future potential that you selected from the quantum field has already happened. The elevated emotion is vital, because only when your choice carries an amplitude of energy that's greater than the hardwired programs in your brain and the emotional addiction in your body will you be able to change your brain's circuitry and your body's genetic expression, as well as recondition your body to a new mind (erasing any trace of the old neurocircuitry and conditioning).

In **Chapter 8**, I'll introduce you to the quantum universe, the unpredictable world of the matter and energy that make up the atoms and molecules of everything in the universe, which turn out to really be more energy (which looks like empty space) than solid matter. The quantum model, which states that all possibilities exist in this present moment, is your key to using the placebo effect for healing, because it gives you permission to choose a new future for yourself and actually *observe it into reality*. You'll then understand just how possible it really is to cross the river of change and make the unknown known.

Chapter 9 introduces you to three people from my workshops who have reported some truly remarkable results from using these same techniques to change their health for the better. First, you'll meet Laurie, who, at age 19, was diagnosed with a rare degenerative bone disease that her doctors told her was incurable. Although the bones in Laurie's left leg and hip suffered 12 major fractures over several decades, leaving her dependent on crutches for getting around, today she walks perfectly normally, without even needing a cane. Her x-rays show no evidence of any fractures in her bones.

Then I'll introduce you to Candace, who was diagnosed with Hashimoto's disease—a serious thyroid condition with a host of complications—during a time in her life when she was resentful and full of rage. Candace's doctor told her she'd have to take medication for the rest of her life, but she proved him wrong after she eventually was able to turn her condition around. Today, Candace is totally in love with a brand-new life and takes no medication for her thyroid, which blood tests show is completely normal.

Finally, you'll meet Joann (the woman mentioned in the Preface), a mother of five who was a successful businesswoman and entrepreneur whom many considered a superwoman—before she collapsed quite suddenly and was diagnosed with an advanced form of multiple sclerosis. Joann's condition went downhill quickly, and she was eventually unable to move her legs. When she first came to my workshops, she made only small changes—until one day when the woman who hadn't moved her legs in years walked around the room, completely unassisted, after just one hour-long meditation!

Chapter 10 shares more remarkable stories from workshop participants, along with the brain scans that go with them. You'll meet Michelle, who turned her Parkinson's disease around, and John, a paraplegic who stood up from his wheelchair after a meditation. You'll read how Kathy (a CEO living on the fast track) learned to find the present moment and how Bonnie healed herself of fibroids and heavy menstrual bleeding. Finally, you'll meet Genevieve, who went into such states of bliss in meditation that tears of joy ran down her face, and Maria, whose experience can only be described as having an orgasm in her brain.

I'll show you the data my team of scientists collected from these people's brain scans so that you can see the changes we witnessed in real time during the workshops. The best part of all this data is that it proves you don't have to be a monk or nun, a scholar, a scientist, or a spiritual leader to accomplish similar feats. You don't need a Ph.D. or a medical degree. The folks in this book are ordinary people like you. After reading this chapter, you'll understand that what these people did is not magic or even all that miraculous; they simply learned and applied teachable skills. And if you practice the same skills, you'll be able to make similar changes.

— **Part II** of the book is all about meditation. It includes **Chapter 11**, which outlines some simple preparation steps for meditation and goes over specific techniques you'll find helpful, and **Chapter 12**, which gives you step-by-step instructions for using the meditation techniques I teach in my workshops—the very same techniques that participants used to produce the remarkable results you'll have read about earlier in the book.

I'm happy to say that although we don't have all the answers yet about harnessing the power of the placebo, all sorts of people are actually using these ideas *right now* to make extraordinary changes in their lives, the kinds of changes that many others consider practically impossible. The techniques I share in this book need not be limited to healing a physical condition; they can also be applied to improving any aspect of your life. My hope is that this book will inspire you to try these techniques, too, and to make possible in *your* life the same kind of seemingly impossible changes.

Author's note: While the stories of the individuals in my workshops who experienced healing are true, their names and certain identifying details have been changed in this book to protect their privacy.

Part I

INFORMATION

Chapter One

Is It Possible?

Sam Londe, a retired shoe salesman living outside of St. Louis in the early 1970s, began to have difficulty swallowing.[1] He eventually went to see a doctor, who discovered that Londe had metastatic esophageal cancer. In those days, metastatic esophageal cancer was considered incurable; no one had ever survived it. It was a death sentence, and Londe's doctor delivered the news in an appropriately somber tone.

To give Londe as much time as possible, the doctor recommended surgery to remove the cancerous tissue in the esophagus and in the stomach, where the cancer had spread. Trusting the doctor, Londe agreed and had the surgery. He came through as well as could be expected, but things soon went from bad to worse. A scan of Londe's liver revealed still more bad news: extensive cancer throughout the liver's entire left lobe. The doctor told Londe that sadly, at best, he had only months to live.

So Londe and his new wife, both in their 70s, arranged to move 300 miles to Nashville, where Londe's wife had family. Soon after the move to Tennessee, Londe was admitted to the hospital and assigned to internist Clifton Meador. The first time Dr. Meador walked into Londe's room, he found a small, unshaven man curled up underneath a mound of covers, looking nearly dead. Londe was gruff and uncommunicative, and the nurses explained that he'd been like that since his admission a few days before.

While Londe had high blood-glucose levels due to diabetes, the rest of his blood chemistry was fairly normal except for slightly higher levels of liver enzymes, which was to be expected of someone with liver cancer. Further medical examination showed

nothing more amiss, a blessing considering the patient's desperate condition. Under his new doctor's orders, Londe begrudgingly received physical therapy, a fortified liquid diet, and lots of nursing care and attention. After a few days, he grew a little stronger, and his grumpiness started to subside. He began talking to Dr. Meador about his life.

Londe had been married before, and he and his first wife had been true soul mates. They had never been able to have children but otherwise had had a good life. Because they loved boating, when they retired they had bought a house by a large man-made lake. Then late one night, the nearby earthen dam burst, and a wall of water crushed their house and swept it away. Londe miraculously survived by hanging on to some wreckage, but his wife's body was never found.

"I lost everything I ever cared for," he told Dr. Meador. "My heart and soul were lost in the flood that night."

Within six months of his first wife's death, while still grieving and in the depths of depression, Londe had been diagnosed with esophageal cancer and had had the surgery. It was then that he had met and married his second wife, a kind woman who knew about his terminal illness and agreed to care for him in the time he had left. A few months after they married, they made the move to Nashville, and Dr. Meador already knew the rest of the story.

Once Londe finished the story, the doctor, amazed by what he'd just heard, asked with compassion, "What do you want me to do for you?" The dying man thought for a while.

"I'd like to live through Christmas so I can be with my wife and her family. They've been good to me," he finally answered. "Just help me make it through Christmas. That's all I want." Dr. Meador told Londe he would do his best.

By the time Londe was discharged in late October, he was actually in much better shape than when he had arrived. Dr. Meador was surprised but pleased by how well Londe was doing. The doctor saw his patient about once a month after that, and each time, Londe looked good. But exactly one week after Christmas (on New Year's Day), Londe's wife brought him back to the hospital.

Dr. Meador was surprised to find that Londe again looked near death. All he could find was a mild fever and a small patch of pneumonia on Londe's chest x-ray, although the man didn't seem to be in any respiratory distress. All of Londe's blood tests looked good, and the cultures the doctor ordered for him came back negative for any other disease. Dr. Meador prescribed antibiotics and put his patient on oxygen, hoping for the best, but within 24 hours, Sam Londe was dead.

As you might assume, this story is about a typical cancer diagnosis followed by an unfortunate death from a fatal disease, right?

Not so fast.

A funny thing happened when the hospital performed Londe's autopsy. The man's liver was, in fact, *not* filled with cancer; he had only a very tiny nodule of cancer in its left lobe and another very small spot on his lung. The truth is, neither cancer was big enough to kill him. And in fact, the area around his esophagus was totally free of disease as well. The abnormal liver scan taken at the St. Louis hospital had apparently yielded a false positive result.

Sam Londe didn't die of esophageal cancer, nor did he die of liver cancer. He also didn't die of the mild case of pneumonia he had when he was readmitted to the hospital. He died, quite simply, because everybody in his immediate environment thought he was dying. His doctor in St. Louis thought Londe was dying, and then Dr. Meador, in Nashville, thought Londe was dying. Londe's wife and family thought he was dying, too. And, most important, Londe himself thought he was dying. Is it possible that Sam Londe died *from thought alone?* Is it possible that thought is that powerful? And if so, is this case unique?

Can You Overdose on a Placebo?

Twenty-six-year-old graduate student Fred Mason (not his real name) became depressed when his girlfriend broke up with him.[2] He saw an ad for a clinical trial of a new antidepressant medication and decided to enroll. He'd had a bout of depression four years previously, at which time his doctor prescribed the antidepressant

amitriptyline (Elavil), but Mason had been forced to stop the medication when he became excessively drowsy and developed numbness. He had felt the drug was too strong for him and now hoped the new drug would have fewer side effects.

After he'd been in the study for about a month, he decided to call his ex-girlfriend. The two of them argued on the phone, and after Mason hung up, he impulsively grabbed his bottle of pills from the trial and swallowed all 29 that were left in the container, attempting suicide. He immediately repented. Running into the hallway of his apartment building, Mason desperately called out for help and then collapsed on the floor. A neighbor heard his cry and found him on the ground.

Writhing, he told his neighbor he'd made a terrible mistake, that he had taken all his pills but didn't really want to die. When he asked the neighbor to take him to the hospital, she agreed. When Mason got to the emergency room, he was pale and sweating, and his blood pressure was 80/40 with a pulse rate of 140. Breathing rapidly, he kept repeating, "I don't want to die."

When the doctors examined him, they found nothing wrong other than his low blood pressure, rapid pulse, and rapid breathing. Even so, he seemed lethargic, and his speech was slurred. The medical team inserted an IV and hooked it up to a saline drip, took samples of Mason's blood and urine, and asked what drug he'd taken. Mason couldn't remember the name.

He told the doctors it was an experimental antidepressant drug that was part of a trial. He then handed them the empty bottle, which indeed had information about the clinical trial printed on the label, although not the name of the drug. There was nothing to do but wait for the lab results, monitor his vital signs to make sure he didn't take a turn for the worse, and hope that the hospital staff could contact the researchers who were conducting the trial.

Four hours later, after the results of the lab tests came back totally normal, a physician who had been part of the clinical drug trial arrived. Checking the code on the label of Mason's empty pill bottle, the researcher looked into the records for the trial. He announced that Mason had actually been taking a placebo and that

the pills he'd swallowed contained no drugs at all. Miraculously, Mason's blood pressure and pulse returned to normal within a few minutes. And as if by magic, he was no longer excessively drowsy either. Mason had fallen victim to the *nocebo:* a harmless substance that, thanks to strong expectations, causes harmful effects.

Is it really possible that Mason's symptoms had been brought on solely because that's what he'd expected to happen from swallowing a huge handful of antidepressants? Could Mason's mind, as in the case of Sam Londe, have taken control of his body, driven by expectations of what seemed to be the most probable future scenario, to the extent that he *made* that scenario real? Could that happen *even if* that meant his mind would have to take control of functions not normally under conscious control? And if that *were* possible, could it also be true that if our thoughts can make us sick, we also have the ability to use our thoughts to make us well?

Chronic Depression Magically Lifts

Janis Schonfeld, a 46-year-old interior designer living in California, had suffered with depression since she was a teenager. She'd never sought help with the condition until she saw a newspaper ad in 1997. The UCLA Neuropsychiatric Institute was looking for volunteer subjects for a drug trial to test a new antidepressant called venlafaxine (Effexor). Schonfeld, whose depression had escalated to the point where the wife and mother had actually entertained thoughts of suicide, jumped at the chance to be part of the trial.

When Schonfeld arrived at the institute for the first time, a technician hooked her up to an electroencephalograph (EEG) to monitor and record her brain-wave activity for about 45 minutes, and not long after that, Schonfeld left with a bottle of pills from the hospital pharmacy. She knew that roughly half the group of 51 subjects would be getting the drug, and half would receive a placebo, although neither she nor the doctors conducting the study had any idea which group she had been randomly assigned to. In fact, no one would know until the study was over. But at the time, that hardly mattered to Schonfeld. She was excited and hopeful

that after decades of battling clinical depression, a condition that would cause her to sometimes suddenly burst into tears for no apparent reason, she might finally be getting help.

Schonfeld agreed to return every week for the entire eight weeks of the study. On each occasion, she'd answer questions about how she was feeling, and several times, she sat through yet another EEG. Not long after she started taking her pills, Schonfeld began feeling dramatically better for the first time in her life. Ironically, she also felt nauseated, but that was *good* news because she knew that nausea was one of the common side effects of the drug being tested. She thought that she surely must have gotten the active drug if her depression was lifting and she was also experiencing side effects. Even the nurse she spoke to when she returned every week was convinced Schonfeld must be getting the real thing because of the changes she was experiencing.

Finally, at the end of the eight-week study, one of the researchers revealed the shocking truth: Schonfeld, who was no longer suicidal and felt like a new person after taking the pills, had actually been in the placebo group. Schonfeld was floored. She was sure the doctor had made a mistake. She simply didn't believe that she could have felt so much better after so many years of suffocating depression simply from taking a bottle of sugar pills. And she'd even gotten the side effects! There *must* have been a mix-up. She asked the doctor to check the records again. He laughed good-naturedly as he assured her that the bottle she had taken home with her, the bottle that had given Schonfeld her life back, indeed contained nothing but placebo pills.

As she sat there in shock, the doctor insisted that just because she hadn't been getting any real medication, it didn't mean that she had been imagining her depression or her improvement; it only meant that whatever had made her feel better wasn't due to Effexor.

And she wasn't the only one: The study results would soon show that 38 percent of the placebo group felt better, compared to 52 percent of the group who received Effexor. But when the rest of the data came out, it was the researchers' turn to be surprised:

The patients like Schonfeld, who had improved on the placebos, hadn't just imagined feeling better; they had actually *changed their brain-wave patterns*. The EEG recordings taken so faithfully over the course of the study showed a significant increase in activity in the prefrontal cortex, which in depressed patients typically has very low activity.[3]

Thus the placebo effect was not only altering Schonfeld's mind, but also bringing about real physical changes in her biology. In other words, it wasn't just in her *mind;* it was in her *brain*. She wasn't just *feeling* well—she *was* well. Schonfeld literally had a different brain by the end of the study, without taking any drug or doing anything differently. It was her mind that had changed her body. More than a dozen years later, Schonfeld still felt much improved.

How is it possible that a sugar pill could not only lift the symptoms of deep-seated depression, but also cause bona fide side effects like nausea? And what does it mean that the same inert substance actually has the power to change how brain waves fire, increasing activity in the very part of the brain most affected by depression? Can the subjective mind really create those kinds of measurable objective physiological changes? What's going on in the mind and in the body that would allow a placebo to so perfectly mimic a real drug in this way? Could the same phenomenal healing effect occur not only with chronic mental illness, but also with a life-threatening condition such as cancer?

A "Miracle" Cure: Now You See It, Now You Don't

In 1957, UCLA psychologist Bruno Klopfer published an article in a peer-reviewed journal telling the story of a man he referred to as "Mr. Wright," who had advanced lymphoma, a cancer of the lymph glands.[4] The man had huge tumors, some as big as an orange, in his neck, groin, and armpits, and his cancer was not responding at all to conventional treatments. He lay in his bed for weeks, "febrile, gasping for air, completely bedridden." His doctor, Philip West, had given up hope—although Wright himself had

not. When Wright found out that the hospital where he was being treated (in Long Beach, California) just happened to be one of ten hospitals and research centers in the country that were evaluating an experimental drug extracted from horse blood called Krebiozen, he got very excited. Wright unrelentingly badgered Dr. West for days until the physician agreed to give him some of the new remedy (even though Wright couldn't officially be part of the trial, which required patients to have at least a three-month life expectancy).

Wright received his injection of Krebiozen on a Friday, and by Monday, he was walking around, laughing, and joking with his nurses, acting pretty much like a new man. Dr. West reported that the tumors "had melted like snowballs on a hot stove." Within three days, the tumors were half their original size. In ten more days, Wright was sent home—he'd been cured. It seemed like a miracle.

But two months later, the media reported that the ten trials showed that Krebiozen turned out to be a dud. Once Wright read the news, became fully conscious of the results, and embraced the thought that the drug was useless, he relapsed immediately, with his tumors soon returning. Dr. West suspected that Wright's initial positive response was due to the placebo effect, and knowing that his patient was terminal, he figured he had little to lose—and Wright had everything to gain—by testing out his theory. So the doctor told Wright not to believe the newspaper reports and that he'd suffered a relapse because the Krebiozen they'd given Wright was found to be part of a bad batch. What Dr. West called "a new, super-refined, double-strength" version of the drug was on its way to the hospital, and Wright could have it as soon as it arrived.

In anticipation of being cured, Wright was elated, and a few days later, he received the injection. But this time, the syringe Dr. West used contained no drug, experimental or not. The syringe was filled only with distilled water.

Again, Wright's tumors magically vanished. He happily returned home and did well for another two months, free of tumors in his body. But then the American Medical Association made the

announcement that Krebiozen was indeed worthless. The medical establishment had been duped. The "miracle drug" turned out to be a hoax: nothing more than mineral oil containing a simple amino acid. The manufacturers were eventually indicted. Upon hearing the news, Wright relapsed a final time—*no longer believing in the possibility of health*. He returned to the hospital hopeless and two days later was dead.

Is it possible that Wright somehow changed his *state of being,* not once but twice, to that of a man who simply didn't have cancer—in a matter of days? Did his body then automatically respond to a new mind? And could he have changed his state back to that of a man with cancer once he heard the drug was purported to be worthless, with his body creating exactly the same chemistry and returning to the familiar sickened condition? Is it possible to achieve such a new biochemical state not only when taking a pill or getting a shot, but also when undergoing something as invasive as surgery?

The Knee Surgery That Never Happened

In 1996, orthopedic surgeon Bruce Moseley, then of the Baylor College of Medicine and one of Houston's leading experts in orthopedic sports medicine, published a trial study based on his experience with ten volunteers—all men who had served in the military and suffered from osteoarthritis of the knee.[5] Due to the severity of their conditions, many of these men had a noticeable limp, walked with a cane, or needed some type of assistance to get around.

The study was designed to look at arthroscopic surgery, a popular surgery that involved anesthetizing the patient before making a small incision to insert a fiber-optic instrument called an arthroscope, which the surgeon would use to get a good look at the patient's joint. In the surgery, the doctor would then scrape and rinse the joint to remove any fragments of degenerated cartilage that were thought to be the cause of the inflammation and

pain. At that time, about three-quarters of a million patients received this surgery every year.

In Dr. Moseley's study, two of the ten men were to be given the standard surgery, called a *debridement* (where the surgeon scrapes strands of cartilage from the knee joint); three of them were to receive a procedure called a *lavage* (where high-pressured water is injected through the knee joint, rinsing and flushing out the decayed arthritic material); and five of them would receive *sham surgery,* in which Dr. Moseley would deftly slice through their skin with a scalpel and then just sew them back up again without performing any medical procedure at all. For those five men, there would be no arthroscope, no scraping of the joint, no removal of bone fragments, and no washing—just an incision and then stitches.

The start of each of the ten procedures was exactly the same: The patient was wheeled into the operating room and given general anesthesia while Dr. Moseley scrubbed up. Once the surgeon entered the operating theater, he would find a sealed envelope waiting for him that would tell him which of the three groups the patient on the table had been randomly assigned to. Dr. Moseley would have no idea what the envelope contained until he actually ripped it open.

After the surgery, all ten of the patients in the study reported greater mobility and less pain. In fact, the men who received "pretend" surgery did just as well as those who'd received debridement or lavage surgery. There was no difference in the results—even six months later. And six years later, when two of the men who'd received the placebo surgery were interviewed, they reported that they were still walking normally, without pain, and had greater range of motion.[6] They said that they could now perform all the everyday activities that they hadn't been able to do before the surgery, six years earlier. The men felt as though they'd regained their lives.

Fascinated by the results, Dr. Moseley published another study in 2002 involving 180 patients who were followed for two years after their surgeries.[7] Again, all three groups improved, with

patients beginning to walk without pain or limping immediately after the surgery. But again, neither of the two groups who actually had the surgery improved any more than the patients who received the placebo surgery—and this held true even after two years.

Could it be possible that these patients got better simply because they had faith and belief in the healing power of the surgeon, the hospital, and even in the gleaming, modern operating room itself? Did they somehow envision a life with a fully healed knee, simply surrender to that possible outcome, and then literally walk right into it? Was Dr. Moseley, in effect, nothing more than a modern-day witch doctor in a white lab coat? And is it possible to attain the same degree of healing when facing something more threatening, maybe something as serious as heart surgery?

The Heart Surgery That Wasn't

In the late 1950s, two groups of researchers conducted studies comparing the then-standard surgery for angina to a placebo.[8] This was well before the *coronary-artery bypass graft,* the surgery most often used today. Back then, most heart patients received a procedure known as *internal mammary ligation,* which involved exposing the damaged arteries and intentionally tying them off. The thinking was that if surgeons blocked the blood flow in this way, it would force the body to sprout new vascular channels, increasing blood flow to the heart. The surgery was extremely successful for the huge majority of patients who had it, although doctors had no solid proof that any new blood vessels were ever actually created—hence the motivation for the two studies.

These groups of researchers, one in Kansas City and one in Seattle, each followed the same procedure, dividing their study subjects into two groups. One received the standard internal mammary ligation, and the other received a sham surgery; the surgeons made the same small incisions into the patients' chests that they made for the real surgery, exposing the arteries, but then they just sewed the patients back up, doing nothing more.

The results of both studies were strikingly similar: 67 percent of the patients who had received the actual surgery felt less pain and needed less medication, while 83 percent of those who had received the sham surgery enjoyed the same level of improvement. The placebo surgery had actually worked better than the real surgery!

Could it be that somehow the patients who had received the sham surgery so believed that they'd get better that they actually *did* get better—through nothing more than holding that expectation for the best? And if that is possible, what does that say about the effects our everyday thoughts, whether positive or negative, have on our bodies and our health?

Attitude Is Everything

A wealth of research now exists to show that our attitude does indeed affect our health, including how long we live. For example, the Mayo Clinic published a study in 2002 that followed 447 people for more than 30 years, showing that optimists were healthier physically and mentally.[9] *Optimist* literally means "best," suggesting that those folks focused their attention on the best future scenario. Specifically, the optimists had fewer problems with daily activities as a result of their physical health or their emotional state; experienced less pain; felt more energetic; had an easier time with social activities; and felt happier, calmer, and more peaceful most of the time. This came right on the heels of another Mayo Clinic study that followed more than 800 people for 30 years, showing that optimists live longer than pessimists.[10]

Researchers at Yale followed 660 people, aged 50 and older, for up to 23 years, discovering that those with a positive attitude about aging lived more than seven years longer than those who had a more negative outlook about growing older.[11] Attitude had more of an influence on longevity than blood pressure, cholesterol levels, smoking, body weight, or level of exercise.

Additional studies have looked more specifically at heart health and attitude. Around the same time, a Duke University

study of 866 heart patients reported that those who routinely felt more positive emotions had a 20 percent greater chance of being alive 11 years later than those who habitually experienced more negative emotions.[12] Even more striking are the results of a study of 255 medical students at the Medical College of Georgia who were followed for 25 years: Those who were the most hostile had five times greater incidence of coronary heart disease.[13] And a Johns Hopkins study presented at the American Heart Association's 2001 Scientific Sessions even showed that a positive outlook may offer the strongest known protection against heart disease in adults at risk due to family history.[14] This study suggests that having the right attitude can work as well as or better than eating the proper diet, getting the right amount of exercise, and maintaining the ideal body weight.

How is it that our everyday mind-set—whether we're generally more joyful and loving or more hostile and negative—can help determine how long we live? Is it possible for us to change our current mind-set? If so, could having a new mind-set override the way our minds have been conditioned by past experiences? Or could expecting something negative to recur actually help to bring that about?

Nauseated Before the Needle

According to the National Cancer Institute, a condition called *anticipatory nausea* occurs in about 29 percent of patients receiving chemotherapy when they are exposed to the smells and sights that remind them of their chemo treatments.[15] About 11 percent feel so sick before their treatments that they actually vomit. Some cancer patients start feeling nauseated in the car on the way to get chemo, before they even set foot inside the hospital, while others throw up while still in the waiting room.

A 2001 study from the University of Rochester Cancer Center published in the *Journal of Pain and Symptom Management* concluded that expecting nausea was the strongest predictor that patients would actually experience it.[16] The researchers' data reported that

40 percent of chemo patients who thought they would get sick—because their doctors told them that they probably would be sick *after* the treatment—went on to develop nausea *before* the treatment was even administered. An additional 13 percent who said they were unsure of what to expect also got sick. Yet *none* of the patients who didn't expect to get nauseated got sick.

How can it be that some people become so convinced that they will get sick from chemotherapy drugs that they get ill before any of the drugs are even administered? Is it possible that the power of their thoughts could be what's making them sick? And if that's true of 40 percent of chemo patients, could it also be true that 40 percent of folks could just as easily *get well* by simply changing their thoughts about what to expect about their health or from their day? Could a single thought that a person accepts also make that person *better?*

Digestive Difficulties Disappear

Not long ago, as I was about to get off an airplane in Austin, I met a woman who was reading a book that caught my eye. We were standing and waiting to deplane, and I saw the book sticking out of her bag; the title mentioned the word *belief.* We smiled at each other, and I asked her what the book was about.

"Christianity and faith," she answered. "Why do you ask?" I told her that I was writing a new book on the placebo effect and that my book was all about belief.

"I want to tell you this story," she said. She went on to tell me that years ago, she had been diagnosed with gluten intolerance, celiac disease, colitis, and a host of other ills, and experienced chronic pain. She'd read up on the diseases and gone to see several different health professionals for advice. They had advised her to avoid certain foods and to take certain prescription drugs, which she had done, but she'd still felt pain throughout her entire body. She also hadn't been able to sleep, had skin rashes and severe digestive disturbances, and suffered from a whole list of other unpleasant symptoms. Then, years later, the woman went to see a

new doctor, who decided to do some blood tests. When the blood tests came back, all of the results were negative.

"The day I found out I was really normal and there was nothing wrong with me, I thought, *I'm fine,* and all my symptoms went away. I immediately felt great and could eat whatever I wanted," she told me with a flourish. Smiling, she added, "What do you believe about *that?*"

If it's true that learning new information that leads to a 180-degree turnaround in what we believe about ourselves can actually make our symptoms disappear, what's going on in our bodies that's supporting that and making it happen? What's the exact relationship between the mind and the body? Could it be possible that those new beliefs could actually change our brains and body chemistries, physically rewire our neurological circuitry of who we think we are, and alter our genetic expression? Could we in fact become different people?

Parkinson's vs. the Placebo

Parkinson's disease is a neurological disorder marked by the gradual degeneration of nerve cells in the portion of the midbrain called the *basal ganglia,* which controls body movements. The brains of those who have this heartbreaking disease don't produce enough of the neurotransmitter dopamine, which the basal ganglia needs for proper functioning. Early symptoms of Parkinson's, which is currently considered incurable, include motor issues such as muscle rigidity, tremors, and changes in gait and speech patterns that override voluntary control.

In one study, a group of researchers at the University of British Columbia in Vancouver informed a group of Parkinson's patients that they were going to receive a drug that would significantly improve their symptoms.[17] In reality, the patients received a placebo—nothing more than a saline injection. Even so, half of them who had no drug intervention, in fact, had much better motor control after receiving the injection.

The researchers then scanned the patients' brains to get a better idea of what had happened and found that the people who responded positively to the placebo were actually manufacturing dopamine in their brains—as much as 200 percent more than before. To get an equivalent effect with a drug, you'd have to administer roughly a full dose of amphetamine—a mood-elevating drug that also increases dopamine.

It seemed that merely expecting to get better unleashed some previously untapped power within the Parkinson's patients that triggered the production of the dopamine—exactly what their bodies needed to get better. And if this is true, then what is the process by which thought alone can manufacture dopamine in the brain? Might such a new internal state, brought on by the combination of clear intention and heightened emotional state, actually make us invincible in certain situations, by activating our own inner storehouse of pharmaceuticals and overriding the genetic circumstances of disease that we once considered outside our conscious control?

Of Deadly Snakes and Strychnine

In parts of Appalachia exist pockets of a 100-year-old religious ritual known as snake handling, or "taking up serpents."[18] While West Virginia is the only state where it's still legal, that doesn't stop the faithful, and local police in other states are known to turn a blind eye to the practice. In these small and modest churches, as congregations gather for the worship service, the preacher enters carrying one or more briefcase-shaped locked wooden boxes with hinged, clear-plastic doors perforated with air holes, and places the boxes carefully on the platform at the front of the sanctuary or meeting room, near the pulpit. Before long, the music starts, a high-energy blend of country-and-western and bluegrass melodies with deeply religious lyrics about salvation and the love of Jesus. Live musicians wail away on keyboards, electric guitars, and even drum sets that any teenage band would envy, while the parishioners shake tambourines as the spirit moves them. As the

energy builds, the preacher might light a flame in a container on top of the pulpit and hold his hand in the fire, allowing the flames to lick his outstretched palm before he picks up the container to sweep the fire slowly over his bare forearms. He's just getting "warmed up."

The congregants soon begin swaying and laying hands on one another, speaking in tongues and jumping up and down, dancing to the music in praise of their savior. They are overcome with the spirit, what they call "being anointed." Then it's time for the preacher to flip open one of the locked boxes, reach a hand in, and pull out a deadly snake—usually a rattlesnake, cottonmouth, or copperhead. He, too, is dancing and working up quite a sweat as he holds the live serpent around its middle so that the snake's head is frighteningly close to the preacher's own head and throat.

He might hold the snake high in the air before bringing it back down closer to his body, dancing all the while, as the snake winds its lower half around his arm and gyrates its upper half in the air in whatever manner it pleases. The preacher might then get a second or even a third snake from additional wooden cases, and the congregants, men and women alike, might join him in handling the serpents as they feel the anointing coming over them. In some services, the preacher might even ingest a poison, like strychnine, from a simple drinking glass, without suffering any ill effects.

Although the snake handlers do sometimes get bitten, considering the thousands of services where feverish believers have reached into those hinged wooden boxes without a trace of doubt or fear, it doesn't happen often. And even when it does, they don't always die—even though they don't rush to the hospital, preferring instead to have the congregation gather around them in prayer. Why are these people not bitten more often? And why aren't there more deaths when they do get bitten? How can they get into a state of mind where they are not afraid of such venomous creatures, whose bite is known to be deadly, and how can that state of mind protect them?

Then there are the displays of extreme strength in emergency situations, known as "hysterical strength." In April 2013, for

example, 16-year-old Hannah Smith and her 14-year-old sister, Haylee, of Lebanon, Oregon, lifted a 3,000-pound tractor to free their father, Jeff Smith, who was trapped underneath.[19] And what about firewalkers—indigenous tribes practicing sacred rituals, and Westerners taking workshops—who stroll across burning coals? Or even the carnival showmen or Javanese trance dancers who feel compelled to chew and swallow glass (a disorder known as *hyalophagia*)?

How are such seemingly superhuman feats possible, and do they have something vital in common? Could it be that at the height of their uncompromising belief, these people are somehow changing their bodies such that they become immune to their environments? And can the same rock-solid belief that empowers snake handlers and firewalkers also go the other way, causing us to harm ourselves—and even die—without our having any awareness of what we're doing?

Victory Over Voodoo

In 1938, a 60-year-old man in rural Tennessee spent four months getting sicker and sicker, before his wife brought him to a 15-bed hospital at the edge of town.[20] By this time, Vance Vanders (not his real name) had lost more than 50 pounds and appeared to be near death. The doctor, Drayton Doherty, suspected that Vanders was suffering from tuberculosis or possibly cancer, but repeated tests and x-rays came up negative. Dr. Doherty's physical examination showed nothing that could be causing Vanders's distress. Vanders refused to eat, so he was given a feeding tube, but he stubbornly vomited whatever was put down the tube. He continued to get worse, repeating the conviction that he was going to die, and eventually he was barely able to talk. The end seemed near, although Dr. Doherty still had no idea what the man's affliction was.

Vanders's distraught wife asked to speak to Dr. Doherty privately and, swearing him to secrecy, told him that her husband's problem was that he'd been "voodoo'd." It seems that Vanders,

who lived in a community where voodoo was a common practice, had had an argument with a local voodoo priest. The priest had summoned Vanders to the cemetery late one night, where he put a hex on the man by waving a bottle of malodorous liquid in front of Vanders's face. The priest told Vanders that he would soon die and that no one could save him. That was it. Vanders was convinced that his days were numbered and thus believed in a new, dismal future reality. The defeated man returned home and refused to eat. Eventually, his wife brought him to the hospital.

After Dr. Doherty had heard the whole story, he came up with a rather unorthodox plan for treating his patient. In the morning, he summoned Vanders's family to his bedside and told them that he was now certain that he knew how to cure the sick man. The family listened intently as Dr. Doherty spun the following fabricated tale. He said that on the previous night, he had gone to the cemetery, where he'd tricked the voodoo priest into meeting with him and divulging how he had voodoo'd Vanders. It hadn't been easy, Dr. Doherty said. The priest had understandably not wanted to cooperate, although he finally relented once Dr. Doherty had pinned him against a tree and choked him.

Dr. Doherty said that the priest had told him that he'd rubbed some lizard eggs onto Vanders's skin and that the eggs had found their way to Vanders's stomach, where they'd hatched. Most of the lizards had died, but a large one had survived and was now eating Vanders's body from the inside out. The doctor announced that all he had to do was remove the lizard from Vanders's body and the man would be cured.

He then called for the nurse, who dutifully brought a large syringe filled with what Dr. Doherty claimed was a powerful medicine. In truth, the syringe was filled with a drug that induced vomiting. Dr. Doherty carefully inspected the syringe to make sure it was working right and then ceremoniously injected his frightened patient with the fluid. In a grand gesture, he left the room, not saying another word to the stunned family.

It wasn't long before the patient began to vomit. The nurse provided a basin and Vanders heaved, wailed, and retched for a

time. At a point that Dr. Doherty judged to be near the end of the vomiting, he confidently strode back into the room. Nearing the bedside, he reached into his black doctor's bag and scooped up a green lizard, hiding it in his palm beyond anyone's notice. Then just as Vanders vomited again, Dr. Doherty slipped the reptile into the basin.

"Look, Vance!" he immediately cried out with all the drama he could muster. "Look what has come out of you. You are now cured. The voodoo curse is lifted!"

The room was buzzing. Some family members fell to the floor, moaning. Vanders himself jumped back away from the basin, in a wide-eyed daze. Within a few minutes, he'd fallen into a deep sleep that lasted more than 12 hours.

When Vanders finally awoke, he was very hungry and eagerly consumed so much food that the doctor feared his stomach would burst. Within a week, the patient had regained all his weight and strength. He left the hospital a well man and lived at least another ten years.

Is it possible that a man could just curl up and die simply because he thought he'd been hexed? Does the contemporary witch doctor, adorned with a stethoscope and holding a prescription pad, speak with the same conviction for us as the voodoo priest did for Vanders—and is our belief the same? And if it's indeed true that a person could, on one level, just decide to die, then could it also be true that a person with a terminal disease could make the decision to *live?* Can someone permanently change his or her internal state—dropping his or her identity as a cancer or arthritis victim or a heart patient or a person with Parkinson's—and simply walk into a healthy body just as easily as shedding one set of clothes and donning another? In the upcoming chapters, we'll explore what's really possible and how that applies to you.

Chapter Two

A Brief History of the Placebo

As the saying goes, desperate times call for desperate measures. When Harvard-educated American surgeon Henry Beecher was serving in World War II, he ran out of morphine. Near the end of the war, morphine was in short supply in military field hospitals, so this situation wasn't uncommon. At the time, Beecher was about to operate on a badly wounded soldier. He was afraid that without a painkiller, the soldier might go into fatal cardiovascular shock. What happened next astounded him.

Without skipping a beat, one of the nurses filled a syringe with saline and gave the soldier a shot, just as if she were injecting him with morphine. The soldier calmed down right away. He reacted as though he'd actually received the drug, even though all he'd received was a squirt of saltwater. Beecher went ahead with the operation, cutting into the soldier's flesh, making what repairs were necessary, and sewing him back up, all without anesthesia. The soldier felt little pain and did not go into shock. How could it be, Beecher wondered, that saltwater could stand in for morphine?

After that stunning success, whenever the field hospital ran out of morphine, Beecher did the same thing again: injected saline, just as if he were injecting morphine. The experience convinced him of the power of placebos, and when he returned to the United States after the war, he began to study the phenomenon.

In 1955, Beecher made history when he authored a clinical review of 15 studies published by the *Journal of the American Medical*

Association that not only discussed the huge significance of placebos, but also called for a new model of medical research that would randomly assign subjects to receive active medications or placebos—what we now refer to as randomized, controlled trials—so that this powerful placebo effect wouldn't distort results.[1]

The idea that we can alter physical reality through thought, belief, and expectation alone (whether we are fully aware of what we're doing or not) certainly didn't start in that World War II field hospital. The Bible is filled with stories of miraculous healings, and even in modern times, people regularly flock to places such as Lourdes in southern France (where a 14-year-old peasant girl named Bernadette had a vision of the Virgin Mary in 1858), leaving behind their crutches, braces, and wheelchairs as proof that they've been healed. Similar miracles also have been reported in Fátima, Portugal (where three shepherd children saw an apparition of the Virgin Mary in 1917), and in connection with a traveling statue of Mary carved for the 30th anniversary of the apparition. The statue was based on the description given by the oldest of the three children, who by then had become a nun, and it was blessed by Pope Pius XII before it was sent traveling around the world.

Faith healing is certainly not confined to the Christian tradition. The late Indian guru Sathya Sai Baba, widely considered by his followers to be an *avatar*—a manifestation of a deity—was known to manifest holy ash called *vibhuti* from the palms of his hands. This fine gray ash has been said to have the power to heal many physical, mental, and spiritual ills when either eaten or applied to the skin as a paste. Tibetan lamas are also said to have healing powers, using their breath to heal by blowing on the sick.

Even French and English kings reigning between the 4th and 9th centuries used the laying on of hands to cure their subjects. King Charles II of England was known to be particularly adept at this, performing the practice about 100,000 times.

What is it that causes such so-called miraculous events, whether the instrument of healing is faith in a deity alone or belief in the extraordinary powers of a person, an object, or even a place deemed sacred or holy? What is the process by which faith and

belief can bring about such profound effects? Might how we assign meaning to a ritual—whether that ritual is saying the rosary, rubbing a pinch of holy ash onto our skin, or taking a new miracle drug prescribed by a trusted physician—play a role in the placebo phenomenon? What if the internal state of mind of the people who received these cures was influenced or altered by the conditions in their external environment (a person, place, or thing at the proper time) to such a degree that their new state of mind could actually effect real physical changes?

From Magnetism to Hypnotism

In the 1770s, Viennese physician Franz Anton Mesmer made quite a name for himself by developing and demonstrating what was considered at that time a medical model of miraculous healing. Expanding on an idea of Sir Isaac Newton's about the effect of planetary gravitation on the human body, Mesmer came to believe that the body contained an invisible fluid that could be manipulated to heal people using a force he called "animal magnetism."

His technique involved asking his patients to look deeply into his eyes before moving magnets over their bodies to direct and balance this magnetic fluid. Later, he found that he could wave his hands (without the magnets) to produce the same effect. Soon after each session began, his patients would start trembling and twitching before going into convulsions that Mesmer considered therapeutic. Mesmer would continue the fluid balancing until they were calm again. He used this technique to heal a variety of maladies, from serious conditions like paralysis and convulsive disorders to more minor difficulties, such as menstrual problems and hemorrhoids.

In what became his most famous case, Mesmer partially cured teenage concert pianist Maria-Theresia von Paradis of "hysterical blindness," a psychosomatic condition she'd had since about the age of three. She stayed in Mesmer's home for weeks as he worked with her and finally helped her to be able to perceive motion and even distinguish color. But her parents were less than overjoyed

by her progress, because they stood to lose a royal pension if their daughter was cured. In addition, as her sight returned, her piano playing deteriorated because she now was able to watch her fingers on the keyboard. Rumors, never substantiated, began circulating that Mesmer's relationship to the pianist was improper. Her parents forcibly removed her from Mesmer's house, her blindness returned, and Mesmer's reputation diminished considerably.

Armand-Marie-Jacques de Chastenet, a French aristocrat known as the Marquis de Puységur, observed Mesmer and took his ideas to the next level. Puységur would induce a deep state that he called "magnetic somnambulism" (similar to sleepwalking), in which his subjects had access to deep thoughts and even intuitions about their health and that of others. In this state, they were extremely suggestible and would follow instructions, although they had no memory of what happened once they came out of it. Whereas Mesmer thought that the power was in the practitioner over the subject, Puységur believed that the power was in the thought of the subject (directed by the practitioner) over his or her own body; this was perhaps one of the first therapeutic attempts to explore the mind-body relationship.

In the 1800s, Scottish surgeon James Braid took the idea of mesmerism still further, developing a concept he called "neurypnotism" (what we now know as hypnotism). Braid became intrigued by the idea when one day he arrived late for an appointment only to find his waiting patient calmly staring in intense fascination at the flickering flame of an oil lamp. Braid found the patient to be in an extremely suggestible state as long as his attention remained so locked, thereby "fatiguing" certain parts of his brain.

After many experiments, Braid learned to get his subjects to concentrate on a single idea while staring at an object, which put them into a similar trance that he felt he could use to cure their disorders, including chronic rheumatoid arthritis, sensory impairment, and the various complications of spinal injuries and stroke. Braid's book *Neurypnology* details many of his successes, including the story of how he cured both a 33-year-old woman whose legs

were paralyzed and a 54-year-old woman with a skin disorder and severe headaches.

Then esteemed French neurologist Jean-Martin Charcot weighed in on Braid's work, claiming that the ability to go into such a trance was possible only in those suffering from the condition of hysteria, which he considered an inherited neurological disorder that was irreversible. He used hypnosis not to cure patients, but to study their symptoms. Finally, a rival of Charcot's, a doctor named Hippolyte Bernheim at the University of Nancy, insisted that the suggestibility so central to hypnotism was not confined to hysterics but was a natural condition for all humans. He implanted ideas in subjects, telling them that when they awoke from their trance, they would feel better and their symptoms would disappear; thus he used the power of suggestion as a therapeutic tool. Bernheim's work continued into the early 1900s.

Although each of these early explorers of suggestibility had a slightly different focus and technique, they were all able to help hundreds and hundreds of people heal a wide variety of physical and mental problems by changing their minds about their maladies and about how those illnesses were expressed in their bodies.

During the first two world wars, military doctors, most notably Army psychiatrist Benjamin Simon, used the concept of hypnotic suggestibility (which I'll discuss further later) to help returning soldiers who suffered from the trauma that was first labeled "shell shock" but is now known as *post-traumatic stress disorder* (PTSD). These veterans had suffered through such horrible war experiences that many of them numbed themselves to their emotions as a form of self-preservation, developed amnesia surrounding the horrific events, or, worse, kept reliving their experiences in flashbacks—all of which can cause stress-induced physical illness. Simon and his colleagues found hypnosis extremely useful for helping the veterans face their traumas and cope with them so that they wouldn't have to resurface as anxiety and physical

ailments (including nausea, high blood pressure and other cardiovascular disorders, and even suppressed immunity). Like those practitioners in the century before them, Army doctors employing hypnosis helped their patients alter their patterns of thinking in order to get well and reclaim their mental and physical health.

These hypnosis techniques were so successful that civilian doctors also became interested in using suggestibility, although many did so not by putting their patients into a trance but by occasionally giving them sugar pills and other placebos and telling them that these "drugs" would make them better. The patients often *did* get better, responding to suggestibility in the same way that Beecher's wounded soldiers responded to the belief that they were receiving shots of morphine. This was, in fact, Beecher's era, and after he wrote his groundbreaking 1955 review calling for the use of randomized, controlled trials with placebos for testing drugs, the placebo became a serious part of medical research.

Beecher's point was well taken. Initially, researchers expected that a study's control group (the group taking the placebo) would remain neutral so that comparisons between the control group and the group taking the active treatment would show how well the active treatment worked. But in so many studies, the control group was indeed getting better—not just on their own but because of their *expectation and belief* that they might be taking a drug or receiving a treatment that would help them. The placebo itself might have been inert, but its effect was certainly not, and these beliefs and expectations were proving to be extremely powerful! So somehow, that effect had to be teased out from the data if that data was to have any real meaning.

To that end, and heeding Beecher's petition, researchers began making the randomized, double-blind trial the norm, randomly assigning subjects to either the active or the placebo group and making sure none of the subjects or any of the researchers themselves knew who was taking the real drug and who was taking the placebo. This way, the placebo effect would be equally active in each group, and any possibility that the researchers might treat subjects differently according to what group they were in would

be eliminated. (These days, studies are sometimes even *triple blind,* meaning that not only are the participants and the researchers who are conducting the trial in the dark about who's taking what until the end of the study, but the statisticians analyzing the data also don't know until their job is done.)

Exploring the Nocebo Effect

Of course, there's always a flip side. While suggestibility was garnering more attention because of its ability to heal, it also became apparent that the same phenomenon could be used to harm. Such practices as hexes and voodoo curses illustrated the negative side of suggestibility.

In the 1940s, Harvard physiologist Walter Bradford Cannon (who had in 1932 coined the term *fight or flight*) studied the ultimate nocebo response—a phenomenon that he called "voodoo death."[2] Cannon examined a number of anecdotal reports of people with strong cultural beliefs in the power of witch doctors or voodoo priests suddenly falling ill and dying—despite no apparent injury or evidence of poison or infection—after ending up on the receiving end of a hex or curse. His research laid the groundwork for much of what we know today about how physiological response systems enable emotions (fear in particular) to create illness. The victim's belief in the power of the curse itself to kill him was only part of the psychological soup that brought about his ultimate demise, Cannon said. Another factor was the effect of being socially ostracized and rejected, even by the victim's own family. Such people quickly became the walking dead.

Harmful effects from harmless sources aren't restricted to voodoo, of course. Scientists in the 1960s coined the term *nocebo* (Latin for "I shall harm," as opposed to "I shall please," the Latin translation of *placebo*), referring to an inert substance that causes a harmful effect—simply because someone believes or expects it will harm her.[3] The nocebo effect commonly pops up in drug studies when subjects who are taking placebos either just expect that there will be side effects to the drug being tested, or when

the subjects are specifically warned of potential side effects—and then they experience those same side effects by associating the thought of the drug with all of the potential causations, even though they've not taken the drug.

For obvious ethical reasons, few studies are designed specifically to look at this phenomenon, although some do exist. A famous example is a 1962 study done in Japan with a group of children who were all extremely allergic to poison ivy.[4] Researchers rubbed one forearm of each child with a poison-ivy leaf but told them the leaf was harmless. As a control, they rubbed the child's other forearm with a harmless leaf that they claimed was poison ivy. All the children developed a rash on the arm rubbed with the harmless leaf that was thought to be poison ivy. And 11 of the 13 children developed no rash at all where the poison had actually touched them.

This was an astounding finding; how could children who were highly allergic to poison ivy *not* get a rash when exposed to it? *And* how could they develop a rash from a totally benign leaf? The new thought that the leaf wouldn't hurt them *overrode* their memory and belief that they were allergic to it, rendering real poison ivy harmless. And the reverse was true in the second part of the experiment: A harmless leaf was made toxic by thought alone. In both cases, it seemed as if the children's *bodies* instantaneously responded to a new *mind*.

In this instance, we could say that the children were somehow freed from the future expectation of a physical reaction to the toxic leaf, based on their past experiences of being allergic. In effect, they somehow transcended a predictable line of time. This also suggests that by some means, they became greater than the conditions in their environment (the poison-ivy leaf). Finally, the children were able to alter and control their physiology by simply changing a thought. This astonishing evidence that thought (in the form of expectation) could have a greater effect on the body than the "real" physical environment helped to usher in a new era of scientific study called *psychoneuroimmunology*—the effect

of thoughts and emotions on the immune system—an important segment of the mind-body connection.

Another notable nocebo study from the '60s looked at people with asthma.[5] Researchers gave 40 asthma patients inhalers containing nothing but water vapor, although they told the subjects that the inhalers contained an allergen or irritant; 19 of them (48 percent) experienced asthmatic symptoms, such as restriction of their airways, with 12 (30 percent) of the group suffering full-blown asthmatic attacks. Researchers then gave the subjects inhalers said to contain medicine that would relieve their symptoms, and in each case, their airways did indeed open back up—although again, the inhalers contained only water vapor.

In both situations—bringing on the asthma symptoms and then dramatically reversing them—the patients were responding to suggestion alone, the thought planted in their minds by the researchers, which played out exactly as they expected. They were harmed when they thought they'd inhaled something harmful, and they got better when they thought they were receiving medicine—and these thoughts were greater than their environment, greater than reality. We could say that their thoughts created a *brand-new* reality.

What does this say about the beliefs we hold and the thoughts we think every day? Are we more susceptible to catching the flu because all winter long, everywhere we look, we see articles about flu season and signs about flu-shot availability—all of which reminds us that if we don't get a flu shot, we'll get sick? Could it be that when we simply see someone with flu-like symptoms, we become ill from thinking in the same ways as the children in the poison-ivy study who got a rash from the inert leaf or from thinking like the asthmatics who experienced a significant bronchial reaction after inhaling simple water vapor?

Are we more likely to suffer from arthritis, stiff joints, poor memory, flagging energy, and decreased sex drive as we age, simply because that's the version of the truth that ads, commercials, television shows, and media reports bombard us with? What other self-fulfilling prophecies are we creating in our minds without

being aware of what we're doing? And what "inevitable truths" can we successfully reverse simply through thinking new thoughts and choosing new beliefs?

The First Big Breakthroughs

A groundbreaking study in the late '70s showed for the first time that a placebo could trigger the release of endorphins (the body's natural painkillers), just as certain active drugs do. In the study, Jon Levine, M.D., Ph.D., of the University of California, San Francisco, gave placebos, instead of pain medication, to 40 dental patients who had just had their wisdom teeth removed.[6] Not surprisingly, because the patients thought they were getting medicine that would indeed relieve their pain, most reported relief. But then the researchers gave the patients an antidote to morphine called naloxone, which chemically blocks the receptor sites for both morphine and endorphins (endogenous morphine) in the brain. When the researchers administered it, the patients' pain returned! This proved that by taking the placebos, the patients had been creating their own endorphins—their own natural pain relievers. It was a milestone in placebo research, because it meant that the relief the study subjects experienced wasn't all in their minds; it was in their minds *and* their bodies—in their *state of being*.

If the human body can act like its own pharmacy, producing its own pain drugs, then might it not *also* be true that it's fully capable of dispensing other natural drugs when they're needed from the infinite blend of chemicals and healing compounds it houses—drugs that act just like the ones doctors prescribe or maybe even *better* than the drugs doctors prescribe?

Another study in the '70s, this one by psychologist Robert Ader, Ph.D., at the University of Rochester, added a fascinating new dimension to the placebo discussion: the element of conditioning. *Conditioning,* an idea made famous by Russian physiologist Ivan Pavlov, depends on associating one thing with another—like Pavlov's dogs associating the sound of the bell with food after Pavlov started ringing it every day before he fed them. In time, the

dogs were conditioned to automatically salivate in anticipation of a meal whenever they heard a bell. As a result of this type of conditioning, their bodies became trained to physiologically respond to a new stimulus in the environment (in this case, the bell), even without the original stimulus that elicited the response (the food) being present.

Therefore, in a conditioned response, we could say that a subconscious program, which is housed in the body (I'll talk more about this in the coming chapters), seemingly overrides the conscious mind and takes charge. In this way, the body is actually conditioned through repeated past experiences to *become* the mind, and conscious thought is no longer totally in control.

In the case of Pavlov, the dogs were repeatedly exposed to the smell, sight, and taste of the food, and then Pavlov rang a bell. Over time, just the sound of the bell caused the dogs to automatically change their physiological and chemical state without thinking about it consciously. Their *autonomic nervous system*—the body's subconscious system that operates below conscious awareness—took over. So conditioning creates subconscious internal changes in the body by associating past memories with the expectation of internal effects (what we call *associative memory*) until those expected or anticipated end results automatically occur. The stronger the conditioning, the less conscious control we have over these processes and the more automatic the subconscious programming becomes.

Ader started out attempting to study how long such conditioned responses could be expected to last. He fed lab rats saccharine-sweetened water that he'd spiked with a drug called cyclophosphamide, which causes stomach pain. After conditioning the rats to associate the sweet taste of the water with the ache in their gut, he expected they'd soon refuse to drink the spiked water. His intention was to see how long they'd continue to refuse the water so that he could measure the amount of time their conditioned response to the sweet water would last.

But what Ader didn't know initially was that the cyclophosphamide also suppresses the immune system, so he was surprised

when his rats started unexpectedly dying from bacterial and viral infections. Changing gears in his research, he continued to give the rats saccharine water (force-feeding them with an eyedropper) but without the cyclophosphamide. Although they were no longer receiving the immune-suppressing drug, the rats continued to die of infections (while the control group that had received only the sweetened water all along continued to be fine). Teaming up with University of Rochester immunologist Nicholas Cohen, Ph.D., Ader further discovered that when the rats had been conditioned to associate the taste of the sweetened water with the effect of the immune-suppressing drug, the association was so strong that just drinking the sweetened water alone produced the same physiological effect as the drug—signaling the nervous system to suppress the immune system.[7]

Like Sam Londe, whose story was in Chapter 1, Ader's rats died by thought alone. Researchers were beginning to see that the mind was clearly able to subconsciously activate the body in several powerful ways they'd never imagined.

West Meets East

By this time, the Eastern practice of *Transcendental Meditation* (TM), taught by Indian guru Maharishi Mahesh Yogi, had caught on in the United States, fueled by the enthusiastic participation of several celebrities (starting with the Beatles in the 1960s). The goal of this technique, which involves quieting the mind and repeating a mantra during a 20-minute meditation session performed twice a day, is spiritual enlightenment. But the practice caught the attention of Harvard cardiologist Herbert Benson, who became interested in how it might help reduce stress and lessen the risk factors for heart disease. Demystifying the process, Benson developed a similar technique, which he called the "relaxation response," described in his 1975 book by the same title.[8] Benson found that just by changing their thought patterns, people could switch off the stress response, thereby lowering blood pressure, normalizing heart rate, and attaining deep states of relaxation.

While meditation involves maintaining a neutral attitude, attention was also being paid to the beneficial effects of cultivating a more positive attitude and pumping up positive emotions. The way had been paved in 1952, when former minister Norman Vincent Peale published the book *The Power of Positive Thinking,* which popularized the idea that our thoughts can have a real effect, both positive and negative, on our lives.[9] That idea grabbed the attention of the medical community in 1976, when political analyst and magazine editor Norman Cousins published an account in the *New England Journal of Medicine* of how he had used laughter to reverse a potentially fatal disease.[10] Cousins also told his story in his best-selling book *Anatomy of an Illness,* published a few years later.[11]

Cousins's doctor had diagnosed him with a degenerative disorder called *ankylosing spondylitis*—a form of arthritis that causes the breakdown of collagen, the fibrous proteins that hold our bodies' cells together—and had given him only a 1-in-500 chance of recovery. Cousins suffered from tremendous pain and had such difficulty moving his limbs that he could barely turn over in bed. Grainy nodules appeared under his skin, and at his lowest point, his jaw nearly locked shut.

Convinced that a persistent negative emotional state had contributed to his illness, he decided it was equally possible that a more positive emotional state could reverse the damage. While continuing to consult with his doctor, Cousins started a regimen of massive doses of vitamin C and Marx Brothers movies (as well as other humorous films and comedy shows). He found that ten minutes of hearty laughter gave him two hours of pain-free sleep. Eventually, he made a complete recovery. Cousins, quite simply, laughed himself to health.

How? Although scientists at the time didn't have a way to understand or explain such a miraculous recovery, research now tells us it's likely that epigenetic processes were at work. Cousins's shift of attitude changed his body chemistry, which altered his internal state, enabling him to program new genes in new ways; he simply *downregulated* (or turned off) the genes that were causing his

illness and *upregulated* (or turned on) the genes responsible for his recovery. (I'll go into more detail about turning genes on and off in the coming chapters.)

Many years later, research by Keiko Hayashi, Ph.D., of the University of Tsukuba in Japan showed the same thing.[12] In Hayashi's study, diabetic patients watching an hour-long comedy program upregulated a total of 39 genes, 14 of which were related to natural killer cell activity. While none of these genes were directly involved in blood-glucose regulation, the patients' blood-glucose levels were better controlled than after they listened to a diabetes health lecture on a different day. Researchers surmised that laughter influences many genes involved with immune response, which in turn contributed to the improved glucose control. The elevated emotion, triggered by the patients' brains, produced drugs that turned on the genetic variations, which activated the natural killer cells and also somehow improved their glucose response—probably in addition to many other beneficial effects.

As Cousins said of placebos back in 1979, "The process works not because of any magic in the tablet, but because the human body is its own best apothecary and because the most successful prescriptions are filled by the body itself."[13]

Inspired by Cousins's experience, and with alternative and mind-body medicine now in full swing, Yale University surgeon Bernie Siegel started to look at why some of his cancer patients with poor odds survived while others with better odds died. Siegel's work defined cancer survivors largely as those who had a feisty, fighting spirit, and he concluded that there were no incurable diseases, only incurable patients. Siegel also began writing about hope as a powerful force for healing and about unconditional love, with the natural pharmacy of elixirs it provides, as the most powerful stimulant of the immune system.[14]

Placebos Outperform Antidepressants

The profusion of new antidepressants that appeared around the late 1980s and into the '90s would next ignite a controversy

that would ultimately (although not immediately) increase respect for the power of placebos. In researching a 1998 meta-analysis of published studies on antidepressant drugs, psychologist Irving Kirsch, Ph.D., then at the University of Connecticut, was shocked to find that in 19 randomized, double-blind clinical trials involving more than 2,300 patients, most of the improvement was due not to the antidepressant medications, but to the placebo.[15]

Kirsch then used the Freedom of Information Act to gain access to the data from the drug manufacturers' unpublished clinical trials, which by law had to be reported to the Food and Drug Administration. Kirsch and his colleagues did a second meta-analysis, this time on the 35 clinical trials conducted for four of the six most widely prescribed antidepressants approved between 1987 and 1999.[16] Now looking at data from more than 5,000 patients, the researchers found again that placebos worked just as well as the popular antidepressant drugs Prozac, Effexor, Serzone, and Paxil a whopping 81 percent of the time. In most of the remaining cases where the drug *did* perform better, the benefit was so small that it wasn't statistically significant. Only with severely depressed patients were the prescription drugs clearly better than placebo.

Not surprisingly, Kirsch's study caused quite an uproar, although many researchers seemed quite willing to throw the placebo baby out with the bathwater. While most of the fracas focused on the fact that these drugs weren't any better than the placebo, the patients in the trials *did,* in fact, get better on antidepressants. The drugs did work. But the patients taking placebos got better, too. Instead of seeing Kirsch's work as proof that antidepressants failed, some researchers chose to see the glass as half-full and pointed to the data as proof that placebos succeeded.

After all, the trials provided stunning proof that thinking that you can get better from depression can actually heal depression just as well as taking a drug. The people in the study who got better on placebos were actually making their *own natural antidepressants,* just as Levine's patients in the '70s who had their wisdom teeth out made their own natural painkillers. What Kirsch had

brought to light was more evidence that our bodies do have an innate intelligence that enables them to serve us with a chemical array of natural healing compounds. Interestingly enough, the percentage of people who improve while taking placebos in depression trials has gotten greater over time, as has the response to active medication; some researchers have suggested that this is because the public has greater expectations for the antidepressant drugs, which in turn makes the placebos more effective in these blind trials.[17]

The Neurobiology of the Placebo

It was only a matter of time before neuroscientists would start using sophisticated brain scans to take an intricate look at what happens neurochemically when a placebo is administered. An example is the 2001 study on Parkinson's patients who regained motor skills after receiving only an injection of saline that they thought was medication (described in Chapter 1).[18] Italian researcher Fabrizio Benedetti, M.D., Ph.D., a pioneer in placebo research, did a similar Parkinson's study a few years later and, for the first time, was able to show a placebo's effect on individual neurons.[19]

His studies explored not only the neurobiology of expectation, as with the Parkinson's patients, but also the neurobiology at work with classical conditioning—what Ader had been able to glimpse years previously with his nauseated lab rats. In one experiment, Benedetti gave study subjects the drug sumatriptan to stimulate growth hormone and inhibit cortisol secretion, and then without the patients' knowledge, he replaced the drug with a placebo. He found that the patients' brain scans continued to light up in the same places as when they were getting the sumatriptan; this was proof that the brain was indeed producing the same substance—in this case, growth hormone—on its own.[20]

The same was seen to be true for other drug-placebo combinations as well; the chemicals made in the brain closely tracked those that the subjects initially received via drugs that were given to treat immune system disorders, motor disorders, and depression.[21]

In fact, Benedetti even showed that placebos caused the same side effects as the drugs. For example, in one placebo study using narcotics, the subjects suffered the same side effects of slow and shallow breathing when taking the placebo, because the placebo effect so closely mimicked the physiological effects of the drug.[22]

If the truth be told, our bodies are indeed capable of creating a host of biological chemicals that can heal, protect us from pain, help us sleep deeply, enhance our immune systems, make us feel pleasure, and even encourage us to fall in love. Reason this for a moment: If a particular gene was already expressed so that we made those specific chemicals at one point in our lives, but then we stopped making them because of some type of stress or illness that turned off that gene, maybe it's possible for us to turn the gene back on again, because our bodies *already know* how to do that from previous experience. (Stay tuned for research to prove this.)

So let's begin to look at how this happens. The neurological research shows something truly remarkable: If a person keeps taking the same substance, his or her brain keeps firing the same circuits in the same way—in effect, memorizing what the substance does. The person can easily become conditioned to the effect of a particular pill or injection from associating it with a familiar internal change from past experience. Because of this kind of conditioning, when the person then takes a placebo, the same hardwired circuits will fire as when he or she took the drug. An associative memory elicits a subconscious program that makes a connection between the pill or injection and the hormonal change in the body, and then the program automatically signals the body's autonomic nervous system to make the related chemicals found in the drug. . . . Isn't that amazing?

Benedetti's research also makes another point very clear: Different types of placebo treatments work best with different goals. For example, in the sumatriptan study, initial verbal suggestions that the placebo would work had no effect on the production of growth hormone. To use placebos to effect unconscious physiological responses by associative memory (such as to secrete hormones

or alter the functioning of the immune system), conditioning gets results, whereas to use placebos to change more conscious responses (such as to relieve pain or lessen depression), a simple suggestion or an expectation works. So there isn't just *one* placebo response, Benedetti insisted, but *several*.

Taking Mind Over Matter into Your Own Hands

An astonishing new twist to placebo research came in a 2010 pilot study led by Harvard's Ted Kaptchuk, D.O.M., that showed that placebos worked *even when people knew they were taking a placebo*.[23] In the study, Kaptchuk and his colleagues gave 40 patients with irritable bowel syndrome (IBS) a placebo. Each patient received a bottle clearly labeled "placebo pills" and was told it contained "placebo pills made of an inert substance, like sugar pills, that have been shown in clinical studies to produce significant improvement in IBS symptoms through mind-body, self-healing processes." A second group of 40 IBS patients, given no pills, served as a control group.

After three weeks, the group taking the placebos reported *twice as much symptom relief* as the no-treatment group—a difference that Kaptchuk noted is comparable to the performance of the best *real* IBS drugs. These patients hadn't been tricked into healing themselves. They *knew full well* that they weren't getting any medication—and yet after hearing the suggestion that the placebos could relieve their symptoms and believing in an outcome independent of the cause, their bodies were influenced to make it happen.

Meanwhile, a parallel track of studies that examines the effect of attitude, perceptions, and beliefs is leading the way in current mind-body research, showing that even something as seemingly concrete as the physical benefit of exercise can be affected by belief. A 2007 study at Harvard by psychologists Alia Crum, Ph.D., and Ellen Langer, Ph.D., involving 84 hotel maids is a perfect example.[24]

At the start of the study, none of the maids knew that the routine work they performed in their jobs exceeded the Surgeon General's recommendation for a healthy amount of daily exercise (30 minutes). In fact, 67 percent of the women told the researchers that they didn't exercise regularly, and 37 percent said they didn't get any exercise. After this initial assessment, Crum and Langer divided the maids into two groups. They explained to the first group that their activity levels related to the number of calories they burned during normal working hours, produced more than enough exercise. They also educated them about the health benefits of exercise. They didn't give any such information to the second group (who worked in different hotels from the first group and so wouldn't benefit from conversations with the other maids).

One month later, the researchers found that the first group lost an average of two pounds, lowered their percentage of body fat, and lowered their systolic blood pressure by an average of 10 points—even though they hadn't performed any additional exercise outside of work or changed their eating habits in any way. The other group, doing the same job as the first, remained virtually unchanged.

This echoed similar research done earlier in Quebec, where a group of 48 young adults participated in a ten-week aerobic exercise program, attending three 90-minute exercise sessions per week.[25] The group was divided into two. The instructors told the first half, the test subjects, that the study was specifically designed to improve both their aerobic capacity and their psychological well-being. They mentioned only the physical benefits of aerobics to the second half, who served as the control group. At the end of the ten weeks, the researchers found that both groups increased their aerobic capacity, but it was only the test subjects, not the controls, who also received a significant boost in self-esteem (a measure of well-being).

As these studies show, our awareness alone can have an important physical effect on our bodies and our health. What we learn, the language that's used to define what we'll experience, and how we assign meaning to the explanations that are offered all affect

our intention—and when we put greater intention behind what we're doing, we naturally get better results.

In short, the more you learn about the "what" and the "why," the easier and more effective the "how" becomes. (My hope is that this book will do the same for you; the more you know what you're doing and why you're doing it, the better results you're bound to get.)

We also assign meaning to subtler factors, such as the color of the medicine we take and the quantity of pills we ingest, as shown in an older but classic study from the University of Cincinnati. In this study, researchers gave 57 medical students either one or two pink or blue capsules—all of them inert, although the students were told that the pink capsules were stimulants and the blue ones were sedatives.[26] The researchers reported, "Two capsules produced more noticeable changes than one, and blue capsules were associated with more sedative effects than pink capsules." Indeed, the students rated the blue pills as being two and a half times more effective as sedatives than the pink pills—even though *all* the pills were placebos.

More recent research shows that beliefs and perceptions can also affect scores in mental performance on standardized tests. In a 2006 study from Canada, 220 female students read fake research reports claiming that men had a 5 percent advantage over women in math performance.[27] The group was divided into two, with one group reading that the advantage was due to recently discovered genetic factors, while the other group read that the advantage resulted from the way teachers stereotype girls and boys in elementary school. Then the subjects were given a math test. The women who'd read that men had a genetic advantage scored lower than those who'd read that men had an advantage due to stereotyping. In other words, when they were primed to *think* that their disadvantage was inevitable, the women performed as if they truly had a disadvantage.

A similar effect has been documented with African-American students, who have historically scored lower than whites on vocabulary, reading, and math tests, including the Scholastic

Aptitude Test (SAT), even when socioeconomic class is not a factor. In fact, the average black student scores below 70 to 80 percent of the white students of the same age on most standardized tests.[28] Stanford University social psychologist Claude Steele, Ph.D., explains that an effect called "stereotype threat" is to blame. His research shows that students who belong to groups that have been negatively stereotyped perform less well when they think their scores will be evaluated in light of that stereotype than they do when they feel no such pressure.[29]

In Steele's landmark study, conducted with Joshua Aronson, Ph.D., researchers gave a series of verbal reasoning tests to Stanford sophomores. Some of the students were given instructions that primed the stereotype that blacks score lower than whites by saying that the quiz they were about to take was designed to measure their cognitive ability, while the others were told that the test was merely an unimportant research tool. In the group where the stereotype was primed, blacks scored lower than whites who had similar SAT scores. When the stereotype was *not* primed, performance of blacks and whites whose SAT scores were similar was the same—proving that the priming made a critical difference.

Basically, *priming* is when some*one,* some*place,* or some*thing* in our environment (for example, taking a test) triggers all sorts of associations that are hardwired into our brains (that people grading this test think black students score lower than whites), causing us to act in certain ways (not scoring as highly) without being conscious of what we're doing. It's called "priming," because it works just as priming a pump does. You have to have water already in the pumping system in order to pump more water out of it. So in this example, the idea or belief that others expect black students to score lower than whites is like the water that's already in the system—it's just there all the time. When you do something to stimulate the system (grabbing the pump handle or taking the test), you're stirring up all those related thoughts, behaviors, or emotions, and you produce exactly what was waiting to emerge from the system all along—be that water, in the case of a pump, or lower test scores, if it's a test.

Think about this for a moment. Most automatic behaviors that priming elicits are produced by unconscious or subconscious programming, which, for the most part, is happening behind the scenes of our awareness. Are we, then, primed to behave unconsciously all day long—without our even knowing it?

Steele replicated this effect with other stereotyped groups as well. When Steele gave a math test to a group of white and Asian men who were strong in math, the white men in the group who were told that Asians do slightly better than whites on the test indeed didn't do as well as the white men in the control group who weren't told that. Steele's experiments with strong female math students showed similar results. Again, when the students' unconscious expectation was that they would score lower, they, in fact, did.

The greater meaning behind Steele's research, then, is quite profound: What we're conditioned to believe about ourselves, and what we're programmed to think other people think about us, affects our performance, including how successful we are. It's the same with placebos: What we're conditioned to believe will happen when we take a pill, and what we think that everyone around us (including our doctors) expects will happen when we do, affects how our bodies respond to the pill. Could it be that many drugs or even surgeries actually work better because we're repeatedly primed, educated, and conditioned to believe in their effects—when if it weren't for the placebo effect, those drugs might not work as well or at all?

Can You Be Your Own Placebo?

Two recent studies from the University of Toledo perhaps shed the best light on how the mind alone can determine what someone perceives and experiences.[30] For each study, researchers divided a group of healthy volunteers into two categories—optimists and pessimists—according to how the volunteers answered questions on a diagnostic questionnaire. In the first study, they gave the subjects a placebo but told them it was a drug that would make

them feel unwell. The pessimists had a stronger negative reaction to the pill than the optimists. In the second study, the researchers gave the subjects a placebo as well, but told them it would help them sleep better. The optimists reported much better sleep than the pessimists.

So the optimists were more likely to respond positively to a suggestion that something would make them feel better, because they were primed to hope for the best future scenario. And the pessimists were more likely to respond negatively to a suggestion that something would make them feel worse, because they consciously or unconsciously expected the worst potential outcome. It's as if the optimists were unconsciously making the specific chemicals to help them sleep, while the pessimists were unconsciously making a pharmacy of substances that made them feel unwell.

In other words, in exactly the same environment, those with a positive mind-set tend to create positive situations, while those with a negative mind-set tend to create negative situations. This is the miracle of our own free-willed, individual, biological engineering.

While we may not know *exactly* how many medical healings are due to the placebo effect (Beecher's 1955 paper, mentioned earlier in this chapter, claimed the number was 35 percent, but modern-day research shows it can range anywhere from 10 to 100 percent[31]), the overall number is certainly extremely significant. Given that, we have to ask ourselves, *What percentage of diseases and illnesses are due to the effects of negative thoughts in the nocebo?* Considering that the latest scientific research in psychology estimates that about 70 percent of our thoughts are negative and redundant, the number of unconsciously created nocebo-like illnesses might be impressive indeed—certainly much higher than we realize.[32] This idea makes a lot of sense, given that so many mental, physical, and emotional health conditions seem to arise from nowhere.

Although it may seem incredible that your mind could actually be that powerful, the research of the past several decades clearly points to a few empowering truths: What you think is what you experience, and when it comes to your health, that's made possible by the amazing pharmacopeia that you have within your body that automatically and exquisitely aligns with your thoughts. This miraculous dispensary activates naturally occurring healing molecules that already exist within your body—delivering different compounds designed to elicit different effects in any number of different circumstances. Of course, this raises the question: *How do we do it?*

The chapters that follow will explain how this all unfolds on a biological level and thus how you can apply this innate ability to consciously and intentionally create the health—and the life—that you want to experience.

Chapter Three

The Placebo Effect in the Brain

If you've read my previous book, *Breaking the Habit of Being Yourself,* you'll find that this chapter reviews much of that material. If you feel that you already have a good command of that information, you may choose to either skip this chapter completely or skim it to brush up on those concepts as needed. If in doubt, I recommend that you read this chapter, because a thorough understanding of what is presented here will be necessary to fully understand the chapters that follow.

As the stories in the last two chapters illustrate, when we truly change our state of being, our bodies can respond to a new mind. And changing our state of being begins with changing our thoughts. Because of the size of our enormous forebrain, the privilege of being a human being is that we can make thought more real than anything else—and that's how the placebo works. To see how the process unfolds, it's vital to examine and review three key elements: *conditioning, expectation,* and *meaning.* As you'll see, these three concepts all seem to work together in orchestrating the placebo response.

I explained *conditioning,* the first element, in the discussion about Pavlov in the previous chapter. To recap, conditioning happens when we associate a past memory (for example, taking an aspirin) with a physiological change (getting rid of a headache) because we've experienced the benefits of the drug so many times. Think about it like this: If you notice that you have a headache,

essentially you become aware of a physiological change in your inner environment (you're feeling pain). The next thing you automatically do is look for something in your outer world (in this case, an aspirin) to create a change in your inner world. We could say it was your internal state (being in pain) that prompted you to think about some past choice you made, action you took, or experience you had in your external reality that changed how you were feeling (taking an aspirin and getting relief).

Thus, the stimulus, or cue, from the outer environment, called the aspirin, creates a specific experience. When that experience produces a physiological response or reward, it changes your internal environment. The moment you notice a change in your inner environment, you pay attention to what it was in your outer environment that caused the change. That event—where something outside of you changes something inside of you—is called an *associative memory.*

If we keep repeating the process over and over again, by association the outer stimulus can become so strong or reinforced that we can replace the aspirin for a sugar pill that looks like an aspirin, and it will produce an automatic inner response (lessening the pain of the headache). That's one way the placebo works. Figure 3.1A, Figure 3.1B, and Figure 3.1C illustrate the conditioning process.

Expectation, the second element, comes into play when we have reason to anticipate a different outcome. If *conditioning* is based on the past, then think of *expectation* as being based on the future. So, for example, if we have chronic pain from arthritis and get a new medication from the doctor, who enthusiastically explains to us that it's supposed to alleviate our pain, we accept his suggestion and expect that when we take this new medication, something different will happen (we won't be in pain anymore). Then, in effect, our doctor has influenced our level of suggestibility.

Once we become more suggestible, we're naturally associating something outside of ourselves (the new medication) with the selection of a different possibility (being pain-free). In our minds, we are picking a different future potential and hoping, anticipating, and expecting that we'll get that different result. If we emotionally accept and then embrace that new outcome we've selected, and

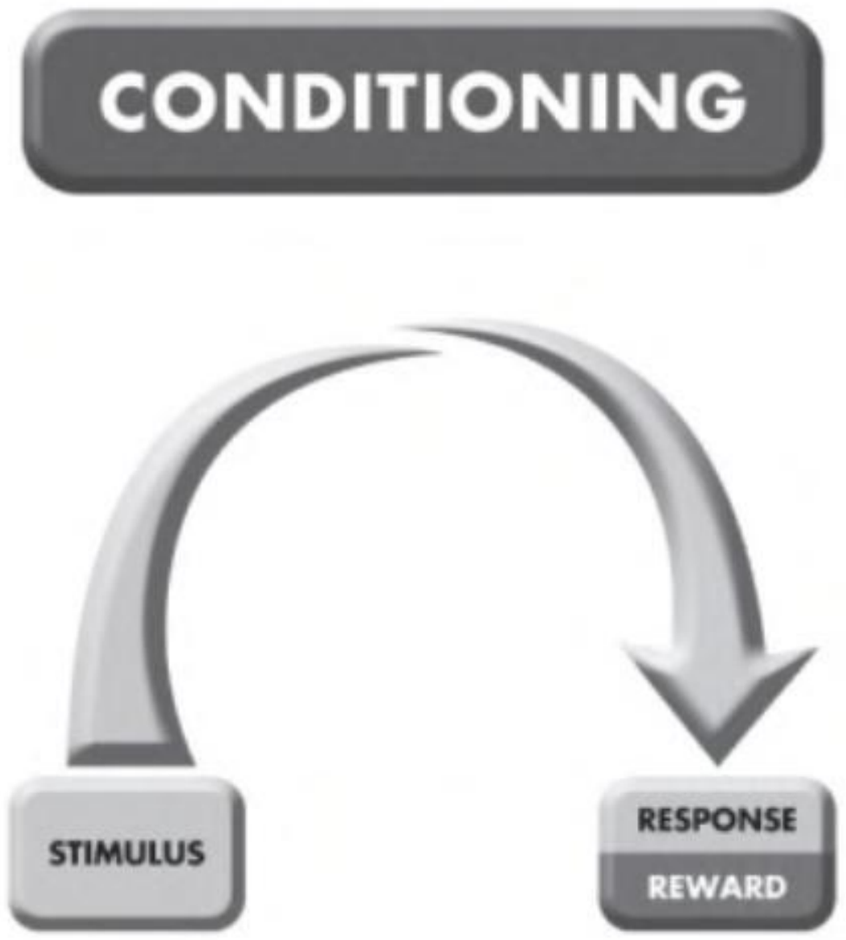

FIGURE 3.1A

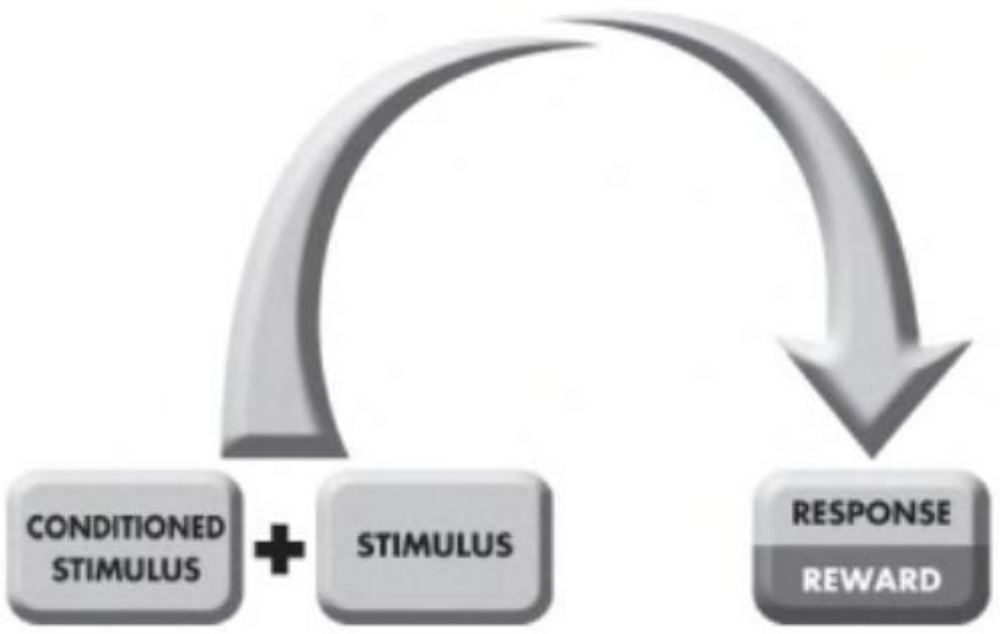

FIGURE 3.1B

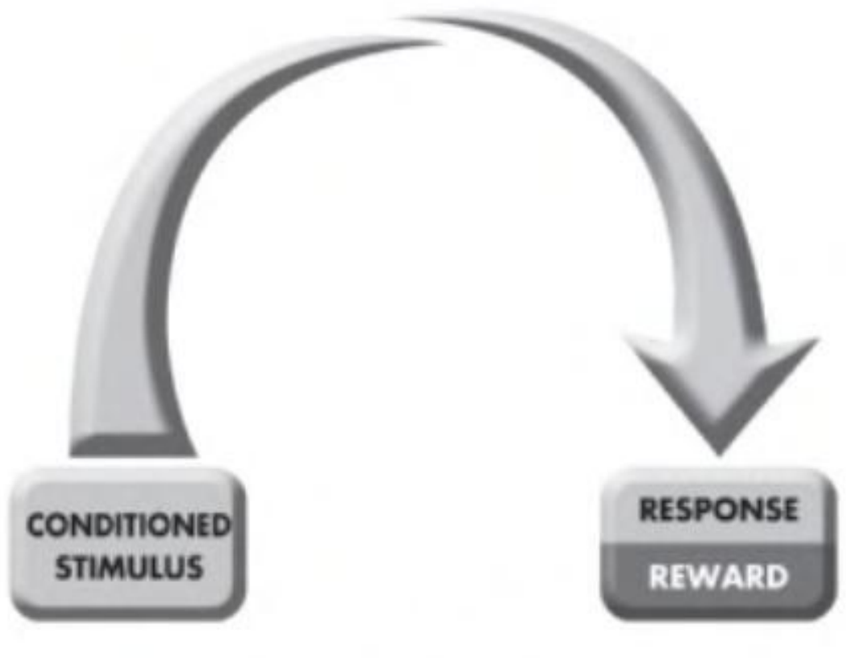

FIGURE 3.1C

In Figure 3.1A, a stimulus produces a physiological change called a response or a reward. Figure 3.1B demonstrates that if you pair a stimulus with a conditioned stimulus enough times, it will still produce a response. Figure 3.1C shows if you remove the stimulus and substitute a conditioned stimulus—like a placebo—it can produce the same physiological response.

the intensity of our emotion is great enough, our brains and our bodies won't know the difference between imagining that we've changed our state of being to being pain-free and the actual event that caused the change to a new state of being. To the brain and the body, they are the same.

Consequently, the brain fires the same neural circuits as it would if our state had changed (if the drug worked to relieve the pain) while it releases similar chemicals into the body. What we're expecting (to be pain-free) then actually happens, because the brain and the body create the perfect pharmacy to alter our internal condition. We are now in a new state of being—that is, the mind and body are working as one. We're that powerful.

Assigning *meaning,* the third element, to a placebo helps it work, because when we give an action a new meaning, then we have added intention behind it. In other words, when we learn and understand something new, we put more of our conscious, purposeful energy into it. So, for example, in the study about the hotel maids from the previous chapter, once the maids understood how much physical exercise they were doing every day just by performing their jobs, as well as the benefits of that exercise, they assigned more meaning to those actions. They weren't just vacuuming, scrubbing, and mopping; they realized they were working their muscles, increasing their strength, and burning calories. Because the vacuuming, scrubbing, and mopping had more meaning after the researchers educated them about the physical advantages of exercise, the maids' intention or aim as they worked wasn't just to complete their tasks—it was also to get physical exercise and become healthier.

And that's exactly what happened. The members of the control group didn't assign the same meaning to their tasks, because they didn't *know* that what they were doing was beneficial to their health, so they also didn't receive the same benefits—even though they were performing exactly the same actions.

The placebo works the same way. The more you believe that a particular substance, procedure, or surgery will work because you've been educated about its benefits, the better your chances